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General Scientific

DEATH IN MAN

ARTHUR MACDONALD,

ANTHROPOLOGIST,

Washington, D. C.

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Physical Death

From the point of view of science alone, all things perish except possibly energy. Life is a form of energy, but as such it ceases to exist; it may pass into some other form of force. According to science, death ends all life, and the functions of the body cease in the same manner and about the same time. To suppose that in some way consciousness persists, is like assuming that digestion persists after the body is dead.

Though death is so common, why should it be so difficult to explain? As it is cessation of life, to understand death, requires the comprehension of life.

The approach of death, if we are aware of it, is impressive, because we are about to undergo an unknown change, and especially for the reason that we are leaving all which has hitherto been interesting and dear to us.

Naturally young people do not think about death,

but later on in life, after more experience, they occasionally may consider the subject in a personal way; they observe rather superficially, that sooner or later, they will come to their journey's end. True, it may be distasteful, yet they may have some curiosity about death; while they speak of it, they may not care to consider it seriously.

We must remember, however, that the study of death has many practical advantages. Considering the last moments of existence, makes us realize how short life is after all, and that we had better make haste and do all we can and be as useful as possible to the world, so that when our last days come, we can feel that we have tried to do something, and though compelled, are willing to resign to others.

Extensive organic disease of any vital organ, must always render one unfit for work, if not almost useless, not to mention pain and other unpleasant conditions.

At least three-fourths of mankind die of disease. About one-seventh of the race die of tuberculosis, probably; and about an equal number of pneumonia.

Transition Stage From Life to Death in Man

When death is neither rapid nor sudden, it is preceded by a period of transition, to which the Greeks gave the name of (agony) to combat, representing a struggle between life and death, but this is more poetic than true. Agony or the dying hour is when the reactionary forces of the organism have ceased and there is no combat. This transition stage, or bridge of time, from life to death can be longer or shorter, even lasting for hours; in most cases consciousness is lost first about the end of this transition period; then with always longer intervals of a quarter to one minute, there are sometimes convulsive movements, and a drawing in all the inspiratory muscles, observed about the nose and mouth, and then again a weak, long-drawn out rattling expiratory sound, called the "death rattle," which comes from the mucus in the air passages. These convulsions, which give the face of the dying a terrible appearance, are simply reflex actions, which soon cease; they are apparently the last efforts of the physical organism to hold fast to life. Thus it is not to be wondered, that these reflex facial actions, have given the popular impression, that the passage

from life to death is a hard struggle and full of physical pain. This in fact is seldom true, for the dying one is usually wholly unconscious.

In every stage of the dying, the transition can end wholly unexpectedly. For where there is a vital fever at its minimum, a cough, a hurried movement, an effort to sit up, etc., these can cause the heart to cease.

Usual Manner of Physical Death

In the large majority of the cases, at the beginning of the final period of physical death or the dying hour, there is a sudden improvement in the febrile phenomena and the pains of the disease, but it is precisely this change which, though prognostic, is false; for there is a complete discord between this apparent amelioration and the other symptoms; if intelligence is still intact, it is obscured and vanishes; responses, less prompt at first, become less precise; the voice is feeble and changed; the sense organs are gradually closed to excitations coming from the outward world; the internal sensations themselves come more slowly to the organ of perception, and give rise only to imperfect or no impressions, the pain ceases. Soon somnolence supplants agitation; the eye-lids fall; at first the pupils contract, dilate and lose their excitability; the face, sometimes pale from the commencement of the dying hours, is often of a dark red; the cheeks flaccid and livid, the lips blue; a cold sweat falls in viscous drops from the surface of the integuments; the pulse is slow and becomes irregular; the respiration is slight and accelerated; it seems that the patient makes efforts to make up for the insufficiency of the respirations by increasing their number. However, the face is transformed and takes on strange characteristics, a dull and cadaverous pallor replaces the blue lividity, the features sink, the jaws fall down flabby and lifeless, the lips become thin, the mouth is open, the nose looks long and pointed; the eyes are half open, but without regard; the ears jut out; it is the hippocratic face in its most complete and sinister expression; at the same time heat withdraws from the extremities to the centre, speech is no more intelligible, the pharynx has lost its action, and liquids fall with noise into the stomach like into an inert vase. The patient sinks upon himself, the moment is near when he will succumb to the empire of physical laws, and already under the influence of gravity which he cannot longer resist, he slides passively from his pillow to the foot of the bed; frequently then urine and fecal matter escape from their reservoirs powerless to contain them; now the heart beats more feebly and less frequently; the pulse is slight, fugitive and as hesitant. The respiratory movements are more frequent, then slacken in their turn; a trachial rattle denotes the presence of abundant mucus in the air passages; inspiration is shorter and shorter, and at rare intervals is being aborted, with barely a slight elevation of the chest; at last there is an interval much longer than the others; the body becomes rigid with a general contraction, a rapid and final convulsion goes over the face; a shorter and still more complete inspiration marks the last effort of life, which is extinguished, the expiration which follows this is already a completely passive phenomenon. At this supreme moment, the pupils dilate to double their normal diameter, the eyes are drawn toward the upper part of the orbit by a convulsive movement; they fall back as soon as covered with a cloth. This movement is the last, the work of death is completed.

This physical picture of the dying hour changes frequently in order; some of the phenomena may not occur; thus intelligence can be preserved to the last breath; the patient then dies in full consciousness, which is very fortunately, rarely the case. Under other circumstances, there may be up to the last moment jolts of the tendons and fibrile movements; in other cases involuntary evacuations are replaced by the complete retention of matter; but these differences in detail do not change fundamentally the phenomena of the dying hour; the general character of the picture remains.

The last act of dying, whatever the degree of previous suffering, is the extinction of sensibility, and with it all suffering, so that it is difficult to say just when death takes place. The rigidity of the corpse has been regarded the emblem of the last muscular effort.

Various Forms and Phases of Physical Death

The forms of physical death may vary much in number, character, order and appearance; they may change in combination according to the nature of the disease and mode of dying, according as it begins in the brain, heart or lungs. As indicated by the author in another article (see bibliography) there are three general forms of death; interference with nervous system (coma or shock), heart action (syncope) and respiration (asphyxiation or apnea). Death beginning with the nervous system acts by coma or asthenia; there is stupor more or less profound (respiration is slow, irregular, and stentorian); voluntary attention to act of breathing is lost; but instinctive motions continue; the chest at length ceases to expand, blood is no longer aerated, and then the internal changes occur as when death begins with the lungs, which is marked by laborious heaving of the chest and stress about the breast; the face may be flushed and turgid, then livid and purplish; the veins of the neck and head swell and the eyes seem to protrude from the sockets; there may be vertigo, loss of consciousness and convulsions. Death beginning with the brain and acting on the heart is usually sudden.

In death from asthenia or failure of contractile power in the heart, the pulse is very feeble and frequent and the muscular debility extreme but the senses are in good condition, hearing may be painfully acute, and the mind clear to the last.

These three general modes of dying are frequently combined in the same person, increasing the sufferings of some and lessening that of others. Such mixed forms of death are especially manifested in fevers.

Death might be said to begin, when the vital powers are so utterly reduced, as to be impossible to restore them. On this point Hippocrates, the father of physicians, mentions as symptoms of dying, a sharp and pinched nose, sunken hollow eyes; ears pale, shrunk, cold and lobes inverted, and the face palid, livid or black. These phenomena indicate complete exhaustion in the circulation and muscular system, showing a loosening of all the bonds, by which life in the body is held together. To these general physical symptoms might be added the half closed glazed eye, dropped jaw, open mouth; blanched, cold, flaccid and pale lip; cold clammy sweats on head and neck; hurried, shallow or slow stertorous breathing with rattle in the throat; pulse irregular, unequal, weak, and very frequent; the patient on his back may be tossing about in disorder; hands grasping in the air, waving languidly before

the face, fumbling the sheets or picking at the bed clothes. In dying the nostrils are dilated and dark looking and the hairs about the lips are more apparent, the teeth appear like ordinary bone, and the eyes seem to shadow through the eye lids, and are partially turned under the lids; the nails are dark and the ends of the fingers sodden; then there are convulsive twitchings, often in the face, with elevations of eyebrows and staring of the eyes, and a gaping attempt to breathe ends all.

During the death period the sense of smell usually fails first, then taste, then sight. About two or three hours before death, the eyes may open wide, then comes a dose or stupor. The fourth sense to fail is touch, and the last hearing. After a while the fingers and muscles begin to twitch, the body falls down in bed one or two hours before death.

In children curious playing with the bed clothes, frequently accompanies affections of the brain, picking of bed clothes and catching of the hands at imaginary objects are also fatal indications. Sometimes the little one automatically draws its hand to its side when the physician wants to feel the pulse.

The signs of death are not always very marked, especially in advanced age, when the vitality is so depressed, that the heart ceases to beat so imperceptibly that death is like tranquilly falling to sleep.

The movements of the heart may gradually cease, from gunshot injury, blow upon the head, or violent emotion of fright, joy or grief,—or by blow upon the lower chest or epigastrium, or by rupture of abscesses or cysts, or by action of poisons, or even injection of cold liquids in excess, or when the body is overheated.

In old age, death generally results from some disease. A slight indigestion, a light bronchial catarrh may be serious. A death where the organs show no pathological abnormalities, where the functionings gradually grow weaker and weaker until life ceases, is very exceptional. Counting deaths for all ages, it is probably not one in one hundred thousand.

Death from old age usually is accompanied by increasing dullness and a continuous sense of obtuseness, often involving insanity. Long continued sickness and suffering can prepare persons for death, if for not other reason than to get rid of the pain, and weary, dreary hours, trying the patience and causing irritability. But there are others with long standing disease who have a certain misgiving or presentiment of approaching death; they feel it when the times draws near; but suffering can occupy their attention, until the pain gradually lessens and finally ceases at the beginning of the dying period.

Manner of Death in Syncope

Syncope may be temporary as in fainting; in fatal syncope, there is sudden paleness, dizziness, cold sweat, dilation of pupils, dimness of vision; the pulse is slow, irregular, flickering, and life ceases; or with sudden paleness, the person may make a few grasps and fall dead. If hemorrhage or perforation of intestinal ulcer occurs, there may be great restlessness, tossing about, difficult respiration, delirium and convulsions as death comes.

In sudden death, the individual turns pale, falls back or drops down and expires with one gasp. Oftener death comes slowly with a more or less lengthened period of exhaustion, culminating in syncope or athenia. In syncope there is paleness of the face and lips, cold sweats, dimness of vision, dilated pupils, vertigo, slow irregular weak pulse and quick insensibility; sometimes there may be nausea

and even vomiting, restlessness, tossing of the limbs and transient delirium. Respiration is irregular, sighing and gasping and convulsions generally occur and may be once or twice repeated.

Death From Apoplexy

In apoplexy, due to the giving away of blood vessels in the brain, the patient becomes insensible and helpless, breathing with a heavy snoring noise, a blowing of the lips is frequently noted, said to seem like smoking a pipe; the blood vessels of neck and face are gorged, and the veins prominent; the pupils are dilated and frequently unequally; the patient is unconscious. This condition may continue indefinitely; at length the breathing becomes laborious; mucus rattles in the throat, the temperatures falls; the faces twitches, and sometimes is greatly distorted; after a while death comes. Death from narcotics usually comes in a similar way. It is known that extreme cold produces torpor, and whoever yields to it will wake no more. Napoleon was once asked what he thought was the easiest mode of dying, and said that in his Russian campaign, soldiers became helpless from the cold, and those who fell asleep, bled a little from the nose and died. At the moment death approaches, the mucus secretions fail, lips, tongue and fauces become dry.

Forms of Death May Depend Upon Organ First Attacked

The nature, symptoms and peculiarities of the act of dying may depend upon the organ first mortally attacked. The arrest of circulation of respiration directly causes death. As to circulation, extensive loss of blood illustrates a manner in which death takes place. The patient becomes faint and pale, the lips are white and tremble; after a while, the breathing is distressed, and rushing noise seems to fill the ears; the pulse is feeble, soft and wavering; exhaustion and prostration are approaching; soon a restlessness comes, and the patient tosses from side to side; the pulse is uncertain and the blood barely reaches the brain; the surface of the body becomes cold. But as yet the mind is not affected, the patient knows he is dying; there is no pulse, a few convulsive gaspings arise, the face assumes the image of death. Such are the main phenomenon seen in death from loss of blood.

Exhausting diseases, interfering with nutrition are accompanied with somewhat similar symptoms as direct loss of blood, but more slowly. Privations and wasting disease, impairing the general health, exhaust the heart's power; there is a gradual failure in circulation until death; during the wasting process, the patient may not be able to rise in bed, or raise his head.

Where death starts from the failure in respiration as in asphyxia, the breathing being largely obstructed, the complexion becomes dark, lips blue, veins turgid and prominent and face bloated. After a time the mind becomes confused and stupor creeps on; there is a heavy gurgling respiration gradually passing into an extreme effort; the breathing seems stopped; again a deep inspiration appears, but life ends. Here the mode of death is longer than when the heart is the primary cause.

Certain lung diseases are gradual and the blood diminishes according to the lessening of the respiratory capacity; thus an equilibrium is maintained. In the last stages of consumption, the emaciated and dying patient may revive and sink so frequently that he becomes fearful that he may never die.

To determine definitely whether death begins with the heart, lungs or brain is exceptional. As a rule, the breaking down of one of these organs follows so closely upon that of the others, as to make it very difficult to find out which system of organs is the last to function. Death beginning at the head or lungs may be delayed by certain means, but when the heart has stopped, restoration is impossible.

When death is expected, the symptoms of its approach is a general failure of temperature, cold sweat on the skin; when fatal internal inflammations are present there may be a change of expression and shrinking of the body.

In coma the mucous rattle is a fatal sign, and on the other hand when the lungs are effected coma may come.

The prominent symptom of death from central paralysis is unconsciousness or coma, if death be not instantaneous; reflex movements cease, respiration is stertorous, slower and more difficult, tranquilly stopping after convulsive movements.

In death from shock, consciousness may sometimes be present, which distinguishes it from syncope.

Picture of Dying by Heart Failure

An active man sits cheerfully with his family at the dinner table, suddenly he is pale, leans to one side, becomes unconscious and expires, without a word; the closing of one of the arteries nourishing the heart is the cause. An aged wife has inflammation of the lungs, the breathing is moderate, consciousness is full, but the heart is weak; the doctor speaks to her, feels the pulse, counts one, two, three, four—and suddenly no pulse—a deep breath yet, all is over—a maiming of the heart muscle is the cause. A young man has suffered long with defective cardiac valves; there comes at last a severe dropsy, a painful dyspnoea, the heart beats fast, always weaker and more irregularly, the patient becomes unconscious; the wearied heart finally is exhausted and stops.

Length of Time for Dying of Different Organs

The kidneys after being cut out can be made to function by having blood stream through them. So the muscles and intestines can be made to act by electricity for hours, and even the human heart out of the body has been made to beat for as long as 24 hours by passing through it oxygenized blood.

Likewise we may assume that the brain can live for a time after death, from twenty minutes to one-half hour. This assumption is strengthened by cases of apparent death, as in submersion, where breathing and circulation are restored. The brain is the most sensitive of all organs, and is usually the first to die. The passage of apparent death to real death is probably brought about by the brain. The ganglion cells of the central nervous system cannot be renewed, like the cells of the liver, skin and other organs. The brain may not only die first, but its death is the cause of what we call a natural death as in old age.

Especially Painful Diseases and Death

Angina pectoris, meningitis, peritonitis, tetanus, hydrophobia and cancer (in certain regions of the body), may be accompanied with much suffering. In angina pectoris the agony is intense, but it is spasmodic and not continuous, and death may be a pleasurable relief.

The preliminary stage in meningitis is the most painful, when every loud sound and ray of light sends an arrow of fire through the brain; but once the disease is established, the sufferer becomes unconscious. In peritonitis the pain is very acute and is increased by the lightest covering, but generally there is a rapid absorbing of poisonous substances which brings about uncon-

sciousness. In lockjaw or tetanus, the patient does not lose consciousness during the convulsions, which is the case in hydrophobia; here death is a great relief from the agony.

Cancer is not necessarily a painful disease, but it can produce torture, if any sensory nerve is involved. But the physician can mitigate the suffering much through opium.

Fundamental Causes of Physical Death in Man

Why physical life grows up to adulthood, remains stationary till old age, and then lessens till it becomes nil, is not explained as yet from the scientific point of view. We assume that an inner characteristic of protoplasm consists in progressive development to a certain degree, and then in a retrograde movement to the lowest or no degree or nothing. All life processes in the animal and human organisms are connected with chemical action in protoplasm of the cells. These changes can only take place through supply of oxygen. The oxygen which we breathe in is disturbed in the organs, tissues and cells through the blood; the blood in turn is kept in circulation mainly through the pumping of the heart. So death in fact takes place, when the vital processes in the cells cease, and since this is due to the lack of oxygen, it can be said that death follows through suffocation of cells and tissues.

As regards the heart, the circulation may cease suddenly or gradually; in syncope and shock it is sudden, in asthenia gradual. The difference in pressure of the blood in the arteries and veins, is the chief force, which keeps up the circulation; anything which overcomes this difference resulting in an equilibrium, stops circulation. This difference in blood pressure is due chiefly to the action of the heart, and if so injured that it cannot propel its contents into the arteries, death follows.

The cause of sudden failure of circulation in the blood vessels may be due to rupture of their coats and rapid reduction of blood pressure by resulting hemorrhage; a similar condition may arise from extreme dilation of the blood vessels of a certain location as in a severe blow upon the abdomen, when the vessels there are so distended, as to remove a great amount of blood from the general circulation; this may cause the heart to cease beating, from the lack of normal stimuluses. A gradual failure in circulation is generally the result of disease, especially when chronic. The heart's own contractile power fails, due to degeneration of muscular fibres, caused by continued high temperature, fatty, atrophic or senile changes; or to action of micro-organisms of infectious diseases, or from toxic sedatives, as aconite, digitalis and tobacco.

Cellular death does not concern us so much, for our whole body dies as such when the heart activity stops, because as noted, this causes the suffocation of the tissues to follow. There are some exceptions, where the suffocation comes before the heart stops, as in hanging, drowning, or in any disease, where the entrance of air through the larynx and trachæa is mechanically hindered; also certain poisons as carbonic acid gas, hydrocyanic acid and some others cause death through suffocation, yet in a peculiar manner, since it is brought about, through the entrance of air is not hindered. In the case of hydrocyanic acid, it is assumed that the inner breathing of the cells (that is the nerve cells) of the breathing center in the medulla oblongata, is stopped. Yet it is noteworthy, that when this deadly acid causes death, the heart beats some time after the rest of the body is already dead.

Death from sudden failure of respiration may be caused from within or without the respiratory organs.

Within, there may be obstructions and occlusions of these organs, or paralysis of their muscles. Causes from without include obstructions by foreign bodies, or by pressure upon any part of the respiratory passages as in strangulation, suffocation, drowning, hanging or action of noxious gases.

Death from gradual failure of respiration comes from diseases which slowly obliterate the lining of the respiratory passages, as oedema of the lungs and pneumonic exudation. Failure of respiration is sometimes a prominent symptom in phthisis (catarrhal pneumonia).

Death coming from the nervous system and brain operates by causing a failure of circulation or respiration. Disease and injuries of the brain may be fatal, from the inflammation extending to the pons or medulla, and by abnormal pressure upon them; death from electric shock belongs here. Such poisons as the toxins, ptomaines and narcotics, affect, as a rule, the cerebral and spinal centers, and when sufficient in quantity can stop respiration and circulation.

Bichat made death consist of three vital steps, or life to depend upon three pillars, the brain, the heart and the lungs. This theory is, however, too absolute. We can die also from troubles in the digestive tract, by the liver and especially kidneys; we can die also from alterations of the humors of the body, as in albuminia and diabetes. It appears, however, that death is not directly due to these secondary agencies, but indirectly to their reaction upon the essential functions of life, that is those of the lungs, brain and heart, and it seems probable, that the arrest of the circulation of the blood or the heart plays the preponderant role in the mechanism and cause of death. For in cases of apparent death, there is never a complete and prolonged arrest of the circulation.

Recent Theory of Physical Death

A recent theory of death is (Ribbert) that disease of the arteries is not an old age affection, though it aids senile changes and presents complications. Old age in itself is free from disease. In the final outcome, it is the ganglion cells direct, that come into consideration. The natural death is a brain death. The finally high degree of atrophy of the ganglion cells is no more in union with life. The cell changes in all the other organs cause a general decrease in vital energy, and thereby indirectly the crippling of the ganglion cells. The equal wearing out of the physical-chemical processes conditions the equally moderate progress of senile changes and therewith almost an equal length of life.

Physiological death in old age is the result of anatomical and therewith also functional changes of the ingredients of our body, involving in part the cells, especially the highly differentiated ones and in part the intermediate substances. These changes are not caused by outward injury, but they are the necessary result of chemical-physical outflow of the vital phenomena. In the cells are formed sediments as products of metabolism, which cause an atrophy of the protoplasm. The intermediate substances which are in the narrow sense not living, gradually lessen their principal mechanical functions and thereby especially injure the circulation, and thereby again (viscous circle) the cells are injured, and so their atrophy is increased.

Psychological Death

The mental condition in death depends upon nutrition and provision of the brain with blood. When

there is a slight insufficiency of blood in the brain, there may be all kinds of abnormal sensations, ringing and noises in the ears, glittering and darkness in the eyes, nausea, faintness, lessening of consciousness, unrest, anxiety. When there is much insufficiency of blood, there is at once depression of the mental powers, sleepiness, torpor, unconsciousness, also conditions of increased sensibility vivid dreams, hallucinations especially of sight; delirium is frequent with anxiety, and at last coma.

Fever also affects the flow of blood in connection with brain nutrition. After an intense fever, there may be much uneasiness, disorder of thoughts, tendency to sleep, with often anxious dreams. Consciousness may not yet be but a little dimmed. Later the patients show little sensitivity, become apathetic; then in a half sleepy condition, there is a play of ideas, which is not (as in the normal condition) based upon sensation or association of ideas, but has spontaneously arisen from disturbances of the ganglion cells, through the overheated blood. Then arise dreamy ideas, and it is yet possible to bring the patient back to reality. Soon phantasy arises, when there may be illusions of the senses, or the patient may will to strike himself and to shriek.

In consumption there is liable to be more talking; sometimes the dying one passes away before he expects. The presence of friends and relatives at the deathbed, the religious exercises or other circumstances, tend to keep the dying one conscious. "Spiro, spero" is a saying which is especially applicable to the dying hour. When the patient realizes there is no more hope, he is often taken unawares, deceives himself. Thus a physician, while dying (from a chronic disease) said: "I cannot sleep good any more, I should go out in the fresh air more." In a few minutes he was dead.

Certain peculiar phenomena occur in the dying hour, thus the voice is often changed; certain new mental powers are manifested, as shown in poetic composition, or a great strengthening in the power of memory. Goethe unexpectedly spoke Greek and recited verses of Homer and Sophocles, after fifty years had passed when he studied them. Others have sung and composed music; their voices becoming majestic; memory and speech which had been lost have returned. In ancient history cases are mentioned where the patient has predicted the time of his death. The insane have been known to return fully to sanity. Thus, one expressed the most touching regrets for having left his mother abandoned for so many years. A lady sixty-two years of age recovered from a profound melancholia, arranged her affairs and died with full consciousness.

In the Martyr's feeling of innocence, there is naturally a strong resentment to death by cruel means. Vespasian with his courtiers around his death bed, laughed like an insane man and said, "I perceive that I shall become God," and then he expired.

In cholera the patients generally remain conscious until the last. The feeling of the nearness of death seems to change and clear the inner sense, the insight into things, while the outward sense, that is sensibility to pain, become benumbed through the gradual lessening of the functions of life. A patient near death put out her hand, saying, "You seem as if you did not know me"; her voice had changed. She had no pain, but trembling in her hands; her mind was clear; she said she knew she was going to die, which proved true.

Persons recovering from suspension do not usually remember what has passed. Cowper attempted to hang himself and whilst he hung, the thought he heard a voice say three times, "Tis over." When he became conscious, he heard his own groans and felt as if a flash of lightning was passing over his whole body; then he found himself on the floor, and got up and jumped into bed. A physician and chemist was seen to be pale, and if there was scarcely any circulation of blood, motionless and appearing in a state of complete insensibility. It was noted that one of his hands was not affected by the paralysis; a pencil and paper were given him, and he wrote some figures in arithmetical progression. It was supposed that he had overheard some remarks, and his object was to show that he was sensible and conscious. Those who have had extensive experience about the death bed believe that consciousness may exist even up to the moment of death, though there may be no outward indication of it.

Delirium in Death

Delirium may be religious, political, or social, and is usually of an anxious nature; it may be vague and without point. Finally the patient falls into deep unconsciousness and death follows. On the other hand, where the toxic effect of infection may lower the temperature, there may be mental disturbances in the form of insanity, especially melancholia or mania. It would seem that the death of the brain at least, as compared with the death of the rest of the body, is dependent upon the circulation of the blood.

Delirium may be confused, or may press about a central point; the content may be pleasant, but more often, as noted, is of an anxious nature. Thus Napoleon, when dying, thought that he was at the head of his army. Giskra and Windhorst made political speeches for hours. Old people often dwell on reminiscences. They may be hallucinations as in the case of a woman, who hears a clock strike in a church miles away.

Emotions and delirium of the dying may be caused by the nature of the disease itself; death-bed manifestations, deeds and confessions and calm and unbiased reflections may be difficult, and unless there is sameness of mind, death declarations of the dying should be used with caution and conservation.

The Ways of the Psychological Death

As there are three physical ways of dying, so in general there may be said to be three different kinds of manifestations in psychological death. The first is in numerous diseases in which there is little or no delirium. Intelligence not only continues to the end, but sometimes becomes very acute. These diseases are pulmonary phthisis, heart and liver affections, cancer of the stomach and intestine, hemorrhages and the great majority of surgical lesions; delirium does not occur in acute articular rheumatism, pleurisy, pericarditis, peritonitis and the morbid conditions of the serous membranes. Sometimes the attention is distracted by organic disorders, but just before death it returns in all its activity and fullness; physical prostration appears to be replaced by intellectual exaltation, illusions vanish, the voice is solemn and pathetic. At times, patients may show mental powers superior to those manifested during their lives. Thus Affieri when dying, recited with enthusiasm verses of Hesoid which he had read only once; Emperor Adrien and Bonsard improvised verses which were models.

Even children may at death show intelligence su-

perior to that they had during their lives. A little boy seven years old a few minutes before his death, had all to come near him, and in a tender and elevated language bade all good bye, and then expressed great gratitude to the physician who attended him. The stage is not wrong when it represents the dying hero speaking until his last breath.

The length of time between insensibility and actual death varies greatly from seconds to hours and days, but consciousness may be retained much longer than is usually supposed. Some times it is difficult to determine when the external organs are completely closed, especially that of hearing.

The second kind of death refers to diseases only secondarily connected with the brain. The mind is in a mixed state between reason and delirium. The third kind of mental death includes all the lesions of the encephalon, which are almost always accompanied with loss of understanding. Delirium is a symptom; here belong the inflammation of the cerebral membranes, hemorrhages, brain tumors and other lesions affecting directly the organs of thought; there is a general obscuration of intelligence, and complete loss of consciousness.

Fear of Death

Modern pessimism is Buddhistic. Many thinkers have confessed that death was a poison or torment in their lives. Tolstoi regarded life as a blind alley, and death as a void, a complete annihilation, but that it was a natural event, and should not be feared. But it would seem that in the majority of persons the sensation of approaching death is painful. It appears that the fear of death in man is instinctive, just as self-preservation and love of life are. The fear of death may be physical or mental, or it may be mixed with indignation at the idea of annihilation or extinction. To counteract this, religion and philosophy have provided many remedies, which have gradually come to be doubted more and more. Few animals, except man, have any consciousness, premonition or fear of death. In man the love of life usually develops with age. Rousseau said that life becomes dearer as its joys pass away. People in great pain, or thinking they have a fatal disease, may desire death,—but if informed that possibly they may get well, then express a wish to live.

The fear of death is part of natural life though it is an exaggeration if not falsification of reality.

The history of martyrdom shows that religious devotion is one of the greatest antidotes to the fear of death.

Opinion of Physicians as to Fear of Death

An English surgeon of long experience said, that he never witnessed but two instances of dying, where there was fear of death; these were in unexpected hemorrhages, which it was impossible to suppress.

An eminent London consulting physician arranged to be called to every patient, who seems to be dying, and as a result of his experience says, that death has no terror for the sick man and there is nothing terrible to the dying in death itself.

Dr. Osler from notes on about five hundred death-beds, found that "ninety (18 per cent.) suffered bodily pain or distress of one sort or another, eleven showed mental apprehension, two positive terror, one expressed spiritual exaltation, one bitter remorse, but the great majority gave no sign one way or the other; like their birth their death was a sleep and a forgetting."

Three medical men, narrowly escaping drowning

under very different conditions, said all fear left them, when their fate seemed certain. One for instance, did not have the least fear, until he began to wonder whether the rescue boat would reach him.

The great specialist Nothnagel, of the University of Vienna, says at the end of an address on death, that the feeling of dread of physical death exists only in the mind; and is only justified in a few cases, and here man is himself partially the cause of it.

Different Attitudes in Fear of Death

It is stated that Dr. Johnson had an everpresent and solemn dread of death, and that Vespasian showed a flippant cynicism in regard to it. Between these extremes, there are doubtless numerous gradation and differences in attitudes of persons toward death.

At birth we are much alike, and at death also. It has been said that fundamentally we live in order to die, that is live in the right way in order to die happy.

We live in the present and are accustomed to think of death as something very far off, and a distant danger is not feared. Some go along thoughtless, without any regard to death. But when death is felt to be near, then there is liable to be fear.

The fear of death may have several forms, thus the natural man has an hereditary instinctive dread of death; a drowning man we say grasps for straws; so even a would-be suicide, after throwing himself into the water, changes his mind and tries to save himself. One of the main things in military training, is to suppress the instinctive feeling of self-preservation so that the soldier will fight fearlessly. It is true that by a strong will, or through faith and prayer, this instinctive fear of death can be suppressed.

There are those who are conscience-stricken and fear the hereafter. At one time in history, the Church had to discourage martyrdom, as so many rushed into it, some believing that martyrs went direct to heaven.

Some criminals, before execution appear to have an exalted, though disturbed state of mind, but the majority seldom show either fear or remorse.

There are cases of pulmonary consumption, in which the desire to live is so entire, long after the patient was sensible of his approaching end, as to produce a distressing state of mind, differing little from that of those who expect a violent death. But this, as has been indicated, is very rare.

The composure and indifference of the patient are not always understood. The fear of death can even prepare us for death. While the criminal to be hanged or person to be lynched may have feelings of horror, but after languishing in prison, he may become resigned to his fate.

A writer in climbing the Alps fell over the edge of a crevasse, hanging to a frail rope for twenty minutes; suddenly he thought he was doomed, but had no fear, but only a dim wonder, as to whether the fall would kill him at once; his last thought was to get over the thing as soon as possible.

Cicero and Seneca looked upon death as pleasurable. In some cases the approach of death is indicated by strange sensations, and where consciousness lasts the feelings are easily comprehended. Premonitions of death may give rise to restlessness. Thus some will suddenly desire to be dressed to go down stairs, or have the location of the bed changed.

Fear of Death Superficial

The fear of death is superficial because it is so easily overcome. Before action in war begins there may be anxiety, but in the heat of battle fear of death is forgotten. The normal fear of death seems to consist in a protest against extinction, but this is usually lost when death arrives. A nurse said, when facing a very dangerous operation, that in health she shrank from death, but on the edge of the precipice she had no fear.

A young man falling from a lofty building and escaping with a few bruises said that in his long fall to earth, which seemed to cover an eternity, he had not the slightest fear. There is a case of a young man who went to the mountains to drop from a precipice, but on seeing a wolf in his path came back. A man was about to commit suicide by jumping off the wall of a fort, but seeing a soldier point a gun at him, he changed his mind.

We may fear death similar to the way in which children are afraid of darkness. The fear of death is mostly illusion. Loche speaks of an Irish Cavalier, who was ungrateful to the one who had restored him to life, after being submerged.

Tacitus says Tiberius still dissimulated, though his other powers were gone; that Vespasian called his courtisans to him and laughed like a maniac saying, "I perceive I am God."

Little or no Pain in the Dying Hour

As has been noted, most persons are unconscious during the dying hour and so without pain. A few may suffer severe headaches on account of brain tumor, or pain from peritonitis, or great agony from burns, also a few suffer much from dyspnea and longing for air. But these cases are decidedly exceptions. Yet such pains do not occur in the dying period and are not conditioned by it, but occur before this period they belong rather to the disease.

"Death-agony" is therefore a falsehood, for in most cases as just noted, a person dying is unconscious of the final stages of his disease, labored breathing and convulsive struggles do not indicate any suffering on the part of the patient. In epileptic convulsions the muscles may even be torn and the tongue bitten, but the patient has no knowledge of it. Some diseases ending fatally may be attended with much pain; but this is not the dying hour which puts an end to the sufferings. On the other hand, many fatal diseases have little physical pain.

The idea that dying is accompanied with severe suffering may arise from misinterpretation of the physical and pathological bodily phenomena accompanying it; also the deaths act is confounded with the symptoms of disease, which precede and lead to it, which are as severe and often move so in those who recover. Dying begins after these symptoms have subsided, there seems to be a pause in nature, the disease has conquered, the battle is over, the body is fatigued by its efforts to sustain itself, it is ready to die and all is tranquility.

In even the most severe inflammation of the lungs, there may be little or no pain, though the difficulty of breathing, cough and fever, which accompany it, frequently exhaust the feelings as much as pain; in chronic forms, however, it is often but little distress even in these last ways.

In serious and specially tedious illness, there is usually sufficient bodily suffering and change or perversion of tastes, to blunt the sensibility, so that the love of life lessens. There are also those to

whom death comes so easily that not a ruffle is seen on the body, when it is very difficult to fix the moment when life has gone. Here dozing may be dying. In old age, especially, death is often the last sleep, not showing any difference from normal sleep.

From the experience and observations of many living in all generations, almost from the beginning of history, the general conclusion is that the ideas of the dreadfulness of death and its physical pain are for the most part in the imagination.

Whether it is the brain, heart or lungs, which begin to give the signal of death, it is almost always the brain forces which are weakened or destroyed first and as a result, sensation lessens or ceases. As to the mental condition during the death period, if there be consciousness to the last, or conscious at times, that depends upon the disease and mental and moral character of the person dying, including surrounding conditions.

According to Nothnagle, those who die of old age simply go to sleep, without struggle, pain or grief. In partial apoplexy groans are unconsciously uttered. The suicide finds life much more painful than death. Emperor Adrian said, "Oh, how miserable a thing it is to seek death and not find it."

In diseases of the large blood vessels, where death is due to escape of blood, there is little or no pain, though previous to dying there may have been considerable suffering; here the act of dying seems to be one of relief.

Personal Testimony as to Pain in Death

When dying Scarron, at intervals would say, "If I am restored, what a fine satire I will make of the death-sob." After a swoon, which was believed to be the end, he came to and willed to his brother fifty books, and bequeathed to his wife to marry again, and died saying, "By my word, I would never imagine that it was so easy to laugh at death."

Fountenelle when dying was asked what was his trouble and murmured "It is to exist. I feel it is great difficulty to live."

Dr. William Hunter, the great anatomist, on his death bed retained his consciousness to the last, and just before he died whispered to a medical friend. "If I had strength enough to hold a pen, I would write how easy and pleasant a thing it is to die."

In addition to direct testimony as to easy death, there are indirect indications where preoccupations, especially gay and burlesque, diverting attention from the idea of fear in dying: Augustus Caesar thought only of the honor of his name and told his wife to remember their marriage.

"The sting of death" seems to be a misnomer." Sir Charles Blagden died in his chair taking coffee with friends and it was said that not a drop spilled from his cup in his hands.

Bouldin relates that when young he almost perished by drowning, and though he did not lose spontaneity of movement nor consciousness, he had neither pain nor fear. The son of the illustrious Berthollet, disgusted with a life, whose pleasures were too uniform, causing ennui and excess, determined to end his life by asphyxia, and gives a faithful account of his last impressions, writing down each minute his experience, in all of which no mention was made of pain.

Unexpected Recoveries Frequently Regretted

There are very exceptional cases, in which the dying period has been entered upon and yet recovery has taken place. It was a cholera patient, with his

eyes half open, while only the whites of his eyes were visible (as in dying), also he was cold, and there was no pulse, yet there was consciousness, for when advised by the doctor, his colleague, as to immediate death, the patient with a laughing face indicated that he understood the situation, that he was passing away happily and quietly. Yet he recovered. Another instance of a middle-aged lady, with a very developed inflammation of the lungs, apparently a hopeless case; the patient herself was convinced she would succumb, and bade those around farewell until her voice failed her, and almost also her sense. She had expressed the wish that the Sacrament be administered to her before her death. The pastor found her so weak, that he doubted she could understand, but by a slight movement of the head she indicated she comprehended. The period of dying appeared to be far advanced. Yet shortly after she began to breathe lighter. On the next day there were signs of improvement and complete recovery followed. But the patient was disappointed, for she was already prepared to die and was happy in the thought of it. But now she must begin life again and wait.

An elderly lady had a stroke of apoplexy; she was in a stupor and none doubted but that she was dying, yet she recovered. She said she knew her situation, heard much of what was said, especially that she would be no more; but she had no power of expressing what she felt, that her "feelings had been agreeable rather than otherwise."

Cases of persons thought dead, being brought to life, were noted by Plato, Herachus, Plutarch and Appollonius. In fact those who were revived after being thought dead were called *Husteropotmoi*.

Little or no Pain in Deaths by Violence

When one is shot through the head, there is doubtless no pain possible, owing to want of time for the nerve current to reach the brain and be felt. Another proof of this is that in battle one may be shot and not know it at the time, though later pain comes. So death is probably painless in all cases where sudden physical violence causes death, as when a rock crushes the body; also there is very probably no physical pain in death by decapitation, as by guillotine or sword; there is probably not even any sensation at all. There can be no consciousness, without functioning of the brain which in turn requires oxygen carried to it by the blood which at the moment of decapitation ceases. This is confirmed by the fact, that when the spinal column is severed for a time, all nerve activity ceases. Death by lightning stroke is doubtless without pain, for the electricity moves very much faster than the nerve current which carries the sensation of pain. There are many persons, as already mentioned, who have been resuscitated from drowning, who stated that they felt nothing; others spoke of sensations, not desirable, yet not painful, and some even mention pleasant sensations. There are cases, very few however, where there is pain in the chest, caused by the sea water on the bronchial mucous membrane. In some the memory is intensified, so that long forgotten things come up.

Likewise those who have fallen from mountain precipices assert that they did not lose consciousness, that they had no pain when they were torn on the rocks; some heard pleasant sounds, and had experienced indescribable but comfortable feelings. Thus, it would seem very probable, that many violent deaths are in no way terrible, and often with little or no pain. Even in death from the tearing of wild

beasts physical pain is seldom spoken of; there appears to be a dreary condition. It would seem that the dread and terror cause a great concussion of the nervous system dependent upon the sudden attack of the beast, producing insensibility (Nothnagel).

One of the least painful of violent deaths is that of loss of blood, and here there is a struggle, but the sensibility, due to failure of circulation is almost extinguished before the involuntary action of the muscles occur. In death from loss of blood there is little or no pain, for the red corpuscles carrying the oxygen flow out, that is the element which makes possible the life and sensibility of the nervous system. The oxygen grows less and less; there is a ringing in the ears, dimming of the eye-sight, comfortable sluggishness, and finally loss of consciousness.

It has been declared, that decapitation, as well as division of the spinal marrow by sword or bullet, is too instantaneous to be felt (Cabanis and Guillotin).

That drowning is an easy death (as already noted) is supported by the statements of many who have been submersed for a certain time and then revived; it is like falling asleep or becoming drowsy; it seems a sort of dying away of sensation; there appear to be no violent convulsions or nervous twitches.

Death from strangulation or hanging is similar to death from drowning, but the efforts are much more severe. It has frequently been noted in cases of hanging that ejaculation occurs. This suggests that not a few such deaths may be accompanied by voluptuous sensations.

Persons restored to consciousness after apparent drowning, may suffer distress at moment of immersion and before consciousness fails, but this soon gives way to drowsy comfort, remaining until consciousness is completely lost. Some say it is much more painful to be resuscitated than to drown.

Tyndall, once rendered unconscious by an electric shock, believed that death by lightning stroke must be painless. The development of asphyxia from charcoal fumes may be an agreeable sensation; so with inhalation of nitrous oxide, according to Sir Humphrey Davy's experience.

Easy Death for the Aged

In old age, the organs become flabby and atrophied; all functions are more inert, easier wearied, and therewith the instinct to live is weaker, or fully extinguished. But very few die from old age alone. The great majority die from disease. In many diseases with acute fever the poisonous action of the toxins causes such a heavy depression of the nervous system that the mind becomes apathetic, whether the patient dies or not. The old think about the possibility of death, the instinct to live can be extinguished and dying both physically and mentally is, in the great majority of cases painless. Also atrophy of all the tissues cause a general exhaustion and reduces more and more the sensibility of the brain; the patient becomes sleepy; the weakened heart pumps less blood to the central nerves, and finally the individual becomes unconscious. In the same way, in diseases where dyspnea occurs, and in many other affections, the sensitiveness of the nerve cells and fibres becomes less on account of the limited supply of oxygen, so that the intensity of all impressions is lessened. Since in the aged all the functions mental and nervous are weakened, they are slow to die; when asked if they are suffering, the old answer, "No, but it will be finished tomorrow." When their members are already cold; asked if they feel cold,

will answer: "No . . . tomorrow." Sometimes death arrives at the time set, though they did not expect it so soon. In general, observation and reason agree as to the easy and painless death of the old.

A physician of long experience said an old man patient, apprehensive of pain at death, that he "would know nothing about it," that it would "be just as easy as being born." Sir James Paget, the distinguished surgeon, believed the act of death was a pleasurable sensation. The centenarian, Fontenelle, was asked when dying, how he felt: "Nothing at all, except that it is difficult to live." Another, ninety-three years old, when a glass of water was given him said, "Many thanks for this service. When you become so old as I, you will see, that death is just necessary as sleep."

Death from old age seems to consist in a gradually lessening power of elimination of poisons or excretions; their retention increases and leads to degeneration, whereby some of the vital organs cease to function; this process culminates in death.

Individual Psychological Attitudes as to Death

The criminal goes to his death in a frame of mind quite different from that of the invalid suffering a long time; the soldier is encouraged by patriotism and sacrifice; thus a General said while dying: "Support me, let not my brave soldiers see me drop; the day is ours, oh, keep it!"

Washington Irving said: "I must arrange my pillows for another weary night; if this could only be the end."

Saint Galais played the lute and sang Latin songs before dying. A great actress, while dying (1772) composed an epitaph and put it to music.

Jefferson Davis, when taking medicine, said "please excuse me," and died. When a number of people desired to call upon a celebrated painter, he told his son not to let any one come in, as he had letters to write; two minutes later he died. A consumptive seeing from the face of his physician that the chances were very poor, asked how long he might yet live; "eight days." The countenance of his aunt nearby did not indicate this. "A day or in a few hours." "God, give me my glass of beer yet once more to drink," when it was brought to him, he took a swallow and died. Many who have experienced refreshing sleep, expecting to be helped again, go to sleep, but never awake.

It seems probable that on the bridge or passage from life to death, consciousness in the fullest sense can return. When people are asked how they wish to die some desire a sudden death; thus the soldier; a bullet which kills him instantly taking him from the field of honor directly into the beyond. Others fear old age, with its helplessness. Others find nothing more terrible than a sudden death, with no preparation; this refers not only to religious natures, for some wish to fight death and to be conscious to the last moment; some find consolation in this, because they believe that their senses will be deadened, and that they will in the last moments escape the feeling of pain.

Suicides before their death express their feelings, which in order of frequency may be thus classified; reproaches, complaints, injuries, statements and reflections over the causes of their tragic end; farewells, directions as to their funeral; desire not to accuse anyone; confession of a crime or passion or bad action; desire to obtain pardon; solicitude for the future of children; confidence in God; kindly

words, regrets of life, belief in a future life, diverse troubles and fatalism.

SARCOMA OF THE TONGUE

Part One

HYMAN I. GOLDSTEIN, M.D.,

ASSISTANT IN MEDICINE, GRADUATE SCHOOL OF MEDICINE,
UNIVERSITY OF PENNSYLVANIA, PHILA., PA.,
Camden, New Jersey

Sarcoma of the tongue has been reported by Heath (1869); Godlee (1887); and Littlewood, H. (2/15/1898). Fargett (1890) reported eleven cases, and mentions the first recorded case of sarcoma of the tongue, by Durham (1867). Heath's case was the second on record. Marion (1897) was able to collect 29 cases, but he overlooked Perkins' (1896) case, which was reported in the *Annals of Surgery*, 1896. Marion's paper appeared in the *Revue de Chirurgie*, 1897. Littlewood's case occurred in a boy, aged 17 years. It was a medium-sized, round-celled sarcoma, involving nearly the whole of the tongue.

Baldwin (1919) reports a case of papilloma of the tongue, which was removed.

Dawson (1910) reports a tumor of the base of the tongue and Howell reports a lymphangioma of the tongue (1918-19) in a child.

Coughlin, of St. Louis (1915) reviewed the literature of sarcoma of the tongue so completely and thoroughly that it is unnecessary to repeat anything that has already been mentioned or included in his excellent paper on the subject. He gives a list of nearly (51) all the references to 1915.

Coughlin reports two cases, one in a school-boy, aged 14 years, with a lump on the tip of the tongue which he had for 6 months; $\frac{3}{4}$ inch by $\frac{1}{2}$ inch, size of nodule in the tip of tongue. Microscopic examination showed round and spindle-cells and cartilage cells.

The second case was in a young student, aged 19 years. The lump on his tongue began to grow 2 or 3 months ago. He bit the tongue eight years ago at the site of the growth. It was a spindle end round-cell sarcoma, the spindle form predominating. The nodule was situated $\frac{3}{4}$ inch back of tongue.

Coughlin was able to find 58 reported cases of primary sarcoma of the tongue, in the entire literature. Most of the cases were reported since 1885. Fripp and Swann have written a very good article on the subject, in *Guy's Hospital Reports*, 1902, p. 88. Naegele (1900), Delbanco (1898) and Jacobi (1869), have reported cases of congenital lingual sarcomas. Gross (1872) reported a case in an infant aged 7 weeks. A case in a child 10 months old is reported by Targett (1890).

Coughlin found that of the 60 cases (including his own 2 cases), a total of 12 cases occurred in patients under 20 years of age. Only ten cases under 20 years occurred in the 58 cases previously reported (19.6 per cent).

Twenty-four cases occurred between the ages of 20 and 40 years, (47 per cent). Only one patient in the 58 cases, was as old as 71 years.

In Beregszaszy's (1887) case, metastatic sarcomatous growths occurred in the bowel wall, peritoneum and mesentery.

In Keenan's (1904) case there were sarcomatous nodules in the stomach and peritoneum.

Fripp and Swan's case was an army sergeant, 26 years old. A firm oval or egg-shaped mass, 7 by 5 cm. was removed. It was a fusiform-celled sarcoma. He was well for 18 months, when he had a recurrence. They collected 43 previously reported cases in the literature. The earliest case was published in 1864. Sixteen

of the 25 cases in which the age is given occurred between 15 and 45 years. Of their list of cases they only except 29 as true primary lingual sarcoma.

Marion and Lichtwitz report a case of pedunculated lingual sarcoma. Mercier, Melchior-Robert and Mikulicz reported pedunculated sarcomata of the tongue, but Fripp and Swan do not include them in their list of 29 true cases. They (Fripp and Swan) accept the cases reported by Heath, (man, aged 60), Dunham (man, aged 61). Fripp (man, 26), Poncet (man, 32), Abbe (man, 26), Butlin (man, 40), Targett (man, 65), Targett (boy, 2 years), Littlewood (man, 17), Beregszaszy (man, 42), Mandillon (man, 21), Marion (man, 17), Mikulicz (man, 57), Hutchinson (man, 22), Meyer (male), Shamburgh (man, 38), Fiedler (man, 40), Perkins (male, 26), Murray (female, 56), Lichtwitz (female, 25), Barling (female, 35), Gross (female, 7 weeks), Santesson (small round-celled), Stern (female, 4 years), Albert (female, 56), Schulten (female, 32), Scheier (female, 28), Eve (spindle-celled), and Eve (adult, round-celled). Fripp and Swan exclude the cases of lingual sarcoma reported by Bloodgood (1894), Bleything (1888), Targett (1873), Perman (1894), Onodi (1893), Jacobi (1869), Hüter (1869), Gerster (1894), James (1898), Godlee (adeno-sarcoma), Michael (1899), Barker (multiple sarcoma), Melchoir-Robert (1899), Mikulicz and Michelson (fusiform-celled sarcoma?), and Mercier (1890), pedunculated spindle-celled tumor. Michael's, James' and Gerster's cases are secondary sarcomata of the tongue.

A. W. Gross, (4/15/1872, *Medical Times*, Phila., p. 272), reported a case and presented a rare specimen before the Pathological Society of Philadelphia, March 14, 1872, the sarcoma of the tongue, removed from a delicate female infant, aged 7 months. It was of a firm, dense consistence, apparently free from pain. It was composed of large oval and spindle cells, the latter of which had a fasciculated arrangement.

Dr. Gross states that examples of sarcoma of the tongue are very uncommon, the only recorded cases he has met with being that of a congenital cystic-sarcoma reported by Jacobi, of New York City, and one alluded to by Sir James Paget in his *Lectures on Surgical Pathology*, under the head of fibro-cellular tumors. In Paget's case the tumor existed for 3 years on the substance of the tongue, near its apex, in a young man.

J. Chalmers Da Costa (p. 684, Keen III), says "true primary lingual sarcoma is a very rare condition" Round-celled sarcoma is more common and much more malignant than a spindle-celled growth; it involves adjacent glands. The spindle-celled neoplasm and the tumor composed of large round cells do not involve adjacent glands. Sarcoma arises in the substance of the tongue.

Churchman's (February, 1918), article on fibroma of the tongue—includes a summary of benign and malignant tumors. He quotes Butlin (1885) and mentions the fact that Coughlin 30 years later collected 60 cases of lingual sarcoma. He states, so rare is primary lingual sarcoma that it does not fall to the lot of many surgeons to see even one case.

Lingual carcinoma is 6 times more common in males than in females; sarcoma is about equally divided between the two sexes. The mucosa over the growth remains intact in lingual sarcoma; the glands are strikingly seldom involved, and the prognosis is relatively good. (Churchman.) Churchman reports a case of lingual fibroma in a man aged 44 years, and emphasizes the importance of distinguishing this growth from an interstitial sarcoma. Interstitial lingual sarcoma being more common than the very rare pedunculated variety.

Becco's case (February, 1919), was a sublingual lipoma of the tongue. Montgomery and Culver, of San Francisco, report a case of a melanotic sarcoma of the lip treated with radium, with good results. Although F. C. Wood in Nelson's *Loose-Leaf Medicine*, 1919, p. 35, advises against the use of either radium or roentgen rays in melanotic growths. The patient, was a physician, aged 37 years. He had a dark slate blue, circular spot about 3 mm. in diameter, lying deep in the exposed red part of the lower lip. It was near the cutaneous border in the median line, and had been first noticed perhaps four years before.

No histological report is given in the article, the diagnosis of melanotic sarcoma can therefore only be tentative and probable, but not certain.

G. B. New (*J. A. M. A.*, Sept. 11, 1920, Vol. LXXV, No. 11, p. 732), reviews 68 cases of mixed tumors of the throat, mouth and face seen at the Mayo Clinic from 1912 to 1918. Wood in his studies (*Ann. Surg.*, 39:57-97, 207-239, 1904), found four cases of tumors in the lip in a series of 59 tumors. New found 3 cases of tumor in the upper lip in his series of 68 cases.

New states he only found one case, that of F. C. Wood, of mixed tumor of the lower lip, the upper lip being usually the one involved. Martin, A. (*Internat. Clin.*, 4; 273-285, 1918), discussed mixed neoplasms of the upper lip. He states, they all occur laterally, like a harelip, and may be found $\frac{1}{4}$ inch in diameter to a much larger size. New states that occasionally these mixed tumors metastasize to the upper cervical glands and become sarcomatous and very malignant in type.

There are (65) sixty-five cases of primary sarcoma of the tongue on record in the available literature of the world. All cases of lingual sarcoma should be reported.

Sarcoma of the Tongue

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Morelli, Schambaugh, Winslow, Perkins, Wiggan, Robinson, Murray and Marion have reported sarcomas of esophagus. Also Hermuth, Cumston, Dörner, Downie (2 cases), Drago, Dunham, Ferlito, Foote, Gregoire, Leleux, Lichtwitz, Alois, and others reported cases of lingual sarcoma.

SARCOMA OF THE ESOPHAGUS

Part Two

Sarcoma of the esophagus is very rare.

Donath (Dec., 1908, in Virchow's *Archiv.*, CXCIV, No. 3), discusses sarcomatous tumors of the esophagus.

V. Hacker (*Mitteilungen aus den Grenzgeb. der Med. u. Chir.*, 1908, xix, No. 3), reports a case of sarcoma of the esophagus and tabulates for comparison the details of 20 cases from the literature. The prognosis is less favorable than with carcinoma. Death occurred in from 2½ to 12 months after the first symptoms in 12 cases. Besides operative measures, V. Hacker advises the use of arsenic freely, as for sarcoma of the pharynx, occasionally changing the preparation.

Rieke reports on sarcoma of the esophagus (*Virchow's Archiv*, Dec., 1909, cxviii, No. 3).

Carcino-sarcoma of the esophagus have been reported by Herxheimer (1908), Herzog (1914), and Saltykow (1914). Esophageal sarcoma occurs in old people, particularly at the entrance and at the bifurcation.

George Gottstein, of Breslau (*Keen's Surgery*, III, p. 809), says, but one case of primary lymphosarcoma of the esophagus has been observed. Schliagenhauffer has reported secondary sarcomatous neoplasms of the esophagus. Sarcoma does not always cause dysphagia, and esophageal symptoms may sometimes not appear until widespread metastases have already developed. A diagnosis during life can only be made by means of esophagoscopy and the excision of a section for microscopical

examination. Carcinoma is the most frequent disease of the esophagus (80 per cent), and is more common in men (70 per cent), past 50 years of age.

Hoffman (1920) recently wrote on Sarcoma (polypösen) of the esophagus. I have been able to find only 21 cases of sarcoma (primary) of the esophagus on record in the literature.

Sarcoma of the Esophagus

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1425 Broadway.

SLEEP AND ITS REGULATION

Renewal of Energies Through Slumber the Paramount Re-Establisher of Man and Especially of the Mature Adult.—II

J. MADISON TAYLOR, A.B., M.D.,

PROFESSOR OF PHYSICAL THERAPEUTICS AND DIETETICS,
MEDICAL DEPARTMENT, TEMPLE UNIVERSITY,
Philadelphia

Disorders of Sleep

Sleep is only a function; therefore, whatever disturbs it depends on both structural and functional derangement of some sort. Causes of disordered sleep are manifold. The commonest are psychic exaltations or depressions, worries, brooding on the cares of the day, continuing to dwell on the waking problems. Habit is ever despotic. A well-trained mind will promptly shut off, or readily let go of, the thought processes. Unnatural activity of the sensory and associated centers is said to cause dreams; that of the motor centers results in shocks, starts and spasmodic phenomena. Control of the visceral centers may become inhibited, permitting unconscious discharges from the bladder, intestines or sexual organs; innervation of the lungs or heart being thus deranged, hence palpitation, cough, or dyspnoea may be induced. Sensory centers being over-stimulated, sensations of light follow, or of sound, also pain or vertigo may occur. "In fine, the ordinary smooth current of the subconscious activities breaks against some pathologic state and now one symptom, now

another, is thrust out and so unpleasantly that the sleeper awakens." (C. L. Dana.)

A review of Dana's remarks on the disorders of sleep will be useful to achieve an understanding of the varieties and phenomena of insomnia; a better term perhaps would be difficulties of sleep. Some people, especially those of middle age, fall asleep easily, but wake in the small hours and thereafter only dose fitfully. This may be due to beginning degenerative changes in the arteries, connected with the effects of worries and strains, or only to habit, or to echoes of youthful customs of early rising, or an acquired weakness or irritability of the heart. Others fall asleep readily, but are soon disturbed by little explosions of motor, sensory or psychic forces. The body or limbs start or jerk; sleep follows, but these nervous explosions may be repeated two or three times. It is usually the result stress or strain of psychic or muscular over-tension, physiologic irritability, indigestion, nervous fatigue, or may foreshadow some serious derangement. Sudden awakenings often betray emotional distress, fear or disorders of ideation.

S. Weir Mitchell was ever interested in the phenomena and anomalies of sleep. In his clinic when I was his chief, frequently probed deeply into the subject with patients. He has written fascinatingly of disorders of sleep, making absorbing literature for the profession as well as the laity. He it was who described first the sensory shocks, strange feelings passing along the body, culminating in some abrupt explosion, noise, odor or vision. Vertigo is occasionally thus experienced, especially by those who have felt it before. That mysterious malady called "migraine" sometimes occurs suddenly while asleep "and hales the sufferer from profound sleep to waking hours of misery."

Morbid or perverted sensations, numbness, "pins and needles" formications and such like mild paresthesia appear at times during sleep. Limbs may seem "dead," sensation being temporarily lost and not in any way which follows upon marked pressure interrupting the flow of nervous impulses, but purely a phenomenon of sleep. These are more common in the later hours of night, when the motor cells are restored in part losing irritability, the sensory cells remaining excitable. Discomforts such as these may be referred to interruptions in the conductivity of the spinal cord. Nocturnal psychoses, the night terrors of children, nightmare, strange mental vagaries, changes in the intellectual and emotional balance, are of wide variety, each person of rich experience is able to recall instances. In these conditions of distress much folly can be committed, and frequently is; evil thoughts are thus engendered, which too often influence action later. Sometimes imperative impulses arising in slumber drive one to commit questionable or silly deeds. The imagination in some is thus stimulated to utter weird statements, or to put on record what are falsely estimated to be thoughts of deep significance. I recall reading an incident in the early official life of Bismarck, who often thus awakened in the night with the conviction that he had solved perplexing problems. On reducing to writing the ideas thus excited he found, on persual next day, that they were altogether fanciful. The subject of dreams and their interpretation has become a specialty of Freud and his disciples who can read more into them than any others.

The sleep of early life is peculiarly sensitive to irritations of the organs below the diaphragm, di-

gestive or genital; in later life to those above, of the heart, blood vessels or lungs. The suspension of brain activity in sleep is only partial; there prevails a certain amount of psychic life. Every nervous stimulus, sensation or idea leaves an impression, a trace, in the cerebro-spinal system. Obscure motions, influences, irritants generated in the organism, may afterward revive temporarily under some impulsion of consciousness, as by afflux of blood. Each cell of the body is endowed with more or less memory (Henle), for by this means are preserved hereditary influences, the transmission of psychic and mental characteristics, the after images of sensations. In this manner many sounds, sights, feelings, which are partially conveyed to the sensorium, may become revived and variously interpreted to the consciousness. "Predormital sensations," (Weir Mitchell) thoughts and movements are thus capable of inducing multiplication and diverse auto-interpretation. The influences of the day are then woven into fanciful pictures more or less reflecting actual life. Freud accredits to dreams reflexes or sexual impulses dominating thought and action.

If sleep be profound the imagination is no longer dominated by actualities and there arises a special world, that of dreams. Mental activity is really physical activity; hence we may experience consequential fatigue. At the bottom of the emotion may be found a subjective excitation of the peripheral the nervous apparatus. This form of reflected life constitutes the basis of dreaming, the imagination, hallucinations, the realm of fancy. Dreams have their origin in those parts of the organism most active in the waking state, in eyes, ears, the tactile, temperature and muscular sense. The same obtains as to hallucination in the insane. A very deep sleep does not encourage dreams, or the waking memory can not recall them, whereas in very light sleep dreams are more frequent and can be remembered.

Dreams are more numerous and picturesque among intellectual people, and during certain exhaustive states, and less among those of lower mentality. The more primitive, young and intellectual the person, the more illogical, disjointed and elementary are the dreams. In old age, and profound depressive states, dreams are most rare; they serve many useful purposes. To the physician certain features of dreams possess a valuable significance. They exercise a salutary influence upon otherwise unused areas of the brain and permit the excursions, or, may be, formation, of the faculty of imagination (Manacienne). They act as a defense against the monotonies and trivialities of real life, for without them we should grow old more rapidly (Novalis). Many writers, poets, scientists, philosophers, musicians, etc. testify to the value of dreams in piecing out their concepts, idealizations, weaving a woof of imagination invaluable to the completed thought.

It will be seen that the regulation of impaired sleep reaches back to causes most varied. Some are slight and superficial; others are due to deep-seated derangements or lesions, beginning or established. In practice, however, certain plain simple procedures usually suffice to bring about happy results. Beyond what these can accomplish, skilled medical aid should be sought and a careful, search made for definite disorders, and systematic measures instituted to remove them consonant with the difficulties encountered. It is well to remember that the causes of wakefulness may be highly complex; slight factors often acting with equal forcefulness with those which theoretically should be greatest.

We are concerned in our efforts to regulate the resting period of the consciousness, with possible morbidity in two directions; too much or too little. Ordinarily it is assumed that the more one gets of sleep the better. This view is so generally accepted that the custom of some physicians, especially those who see much of illness in the extreme periods of life is to order food or employ active measures at regular hours, involving the waking of the patient. This verges upon, and too often passes the danger line. Judgment must be exercised, and is well within the capabilities of a good nurse. Serious exhaustion has often followed needless interruptions of repose during exhaustive states. In young children and the seriously exhausted it has frequently caused death.

A variety of disorders, partly of developmental and partly of degenerative origin, may result from, or are indicated by, excessive somnolence. During infancy sleeping must predominate over waking states, the unconscious reflex life over the conscious intellectual life. It should be remembered, however, that consciousness requires exercise for development. Monotonous measures such as rocking, swinging, unmusical lullabies, may serve a salutary purpose occasionally, but can readily be carried too far, to the point of lowering energy, of reducing temperature, inducing excessive anemia of the brain and disturbances of circulation. Sleep should come by opportunity, comfortable position and customary environment. Habits should be formed sufficient in themselves to invite repose. It ought not to be interrupted needlessly, nor forced by measures or drugs which obtund the consciousness. Normality of sleeping capacity is the product of intellectual equipoise. Stupid folk are proverbially dull, lethargic, with large capacities for deep sleep. Some part of this is no doubt also the result of sensual indulgence. The consciousness is often enfeebled by its own disuse in young and old.

In the young the impetus to exercise the faculties demands encouragement; also, as age enfeebles the brain structures, mental stagnation, hence deterioration, is invited by over much time spent in unconsciousness. Nutritive balance, the expenditure of energy, can not be maintained indefinitely. Renewals of sleep must occur. Inordinate somnolence, however, makes for exhaustion of body and mind; the kidneys suffer, their vessels become distended and hence enfeebled. In the aged the tone of the tissues, especially of the vessel walls, tends to become devitalized, leading to a stasis in lymph and blood vessels and to various forms of organic derangement. In deep sleep, long continued, this stasis of blood and lymph is unduly encouraged, sometimes to the point of paresis. The bile becomes thickened, stagnated; the bowels, the intestines, suffer from a surfeit of sleep, impairing the machinery of peristalsis, hence follows looseness or constipation. The urinary organs also share in this derangement of elimination and hence gravel, calculi, may be encouraged to form. Anemias are often unaccountable, but it will be found that chlorotics usually sleep too much and are the better for its regulation.

No simple fact is more forcefully borne in upon the writer than that early rising and movement in the open air before breakfast is a measure of vast importance in a large array of chronic ailments, especially of metabolism gout, dyspepsia, constipation, obesity and disorders of the sense organs. Many people aver they are made miserable by rising early, stirring about before taking food, and consequently suffer from headaches, nausea, prostration and the like. These phenomena are the results of some de-

rangements in the circulatory balance, probably due to a morbid quality of sleep, which for the most part is remediable. In proof of this statement is the fact, usually demonstrable, that if the physician can secure fair co-operation, with persistence all this wretchedness will disappear. Particularly is this shown if circumstances compel the patient to alter habits for the better. Abundant illustrative instances could be cited. Weir Mitchell in his recommendations for the rest treatment, so valuable in the repair of profound conditions of exhaustion, compels a fixed hour for waking, usually seven A.M. Often it has been the writer's duty to soothe and explain to Dr. Mitchell's patients, who resented being awakened, the reason for this regulation.

Disuse of muscle is followed by atrophy; so of other tissues. Strength can only grow by judicious, continued use. Witness the pitiable spectacle of steady degeneration of the tissues, in mental and physical aptitudes, commonly displayed in those of advancing years, who through withdrawal of normal stimuli to exertion, their organs and structures are permitted to fall into disuse. Prosperity, so often an excuse for cessation of energies, is often fatal to physical and mental efficiency. The antidote, simple and most effective is the restitution of habits of usefulness, applied all along the whole line of normal activities.

Conditions Which Favor Sleep

Sleep being the relaxation, suspension of the consciousness, the brain being the center of consciousness, it naturally follows that, the circulation in the brain is, during sleep, at the lowest normal tension. Whatever disturbs sleep, therefore, it is probably an influx of blood to the brain. It is evident that to sleep peacefully and continually it is important that the blood pressure shall be as nearly as possible balanced, compensated. If this be markedly above or below par sleep may be interfered with. Plethoric folk, however supposedly of over-tense vessels, often sleep better than the feeble and weakly; yet they are more likely to slumber heavily, are difficult to wake, and on waking suffer from morning confusion and headache; in short, are far less refreshed by slumber and require longer to acquire waking balance than do frail beings whose sleep is shallow, interrupted and seemingly insufficient.

In order to secure comfortable natural sleep there is demanded a careful regulation of blood supply and distribution. The difficulty may be found due to faulty skin action, to cold extremities, intestinal accumulations, visceral poisons, organic derangements, to a weak heart, an over-tired body, an over-wrought brain or other source of disorder, is the province of the physician.

Always attention should be directed to submerged fears, anxieties, worries, often dominating impulses, delusions, horrors, either formulated or vague, superficial, "too deep for words." These may be only raised to the threshold of consciousness by inducing hypnoidal states.

While it is most desirable that sleep should be taken in regular amounts, at suitable times, and this during the hours of darkness and continuously, still it is possible that various habits may be formed, seemingly peculiar, which suffice for ordinary requirements. These may be acquired to meet some temporary demand, or become habitual for years. For instance, mothers of young babies commonly form the habit of sleeping and waking readily and frequently, and yet continue to enjoy excellent health. Trained nurses acquire even more complex, yet systematic habits of sleep and wakefulness; a regular irregularity, yet productive of little or no exhaustion, at least for a time. Persons engaged in diverse strenuous occupations secure a power of seizing

sleep when they can get it, notably sailor men by "watches" of four hours each on and off duty.

Sleep, being the chief restorative agency for the consciousness, the desideratum is chiefly to achieve enough repose in sufficient completeness to repair brain cells and other centers of energy. In those whose lives are full of repeated and emphatic demands upon them for concentration of attention, the habit of taking short naps is found to be most refreshing and invigorating. Many physicians, some lawyers, and other professional men who pursue literary work, find it satisfactory to secure a brief sleep some time during the day, often in the middle of occupations, when an opportunity offers. Thus a short sleep in a conveyance, a chair, or preferably lying down on a bench or lounge, will rejuvenate the powers and permit continuance of intellectual work far into the night. While a certain number of hours of consecutive sleep are imperative for full health, these cannot be dogmatically determined except by carefully weighing circumstances, which vary. Lumber men on the "drive" maintain excellent health on the smallest amount of sleep, during the most trying circumstances, after intense physical exertion so long as the Spring daylight lasts, often wet to the skin by icy water, with little or no bedclothes or protection at night from freezing weather and fed irregularly, often insufficiently. Armies, exploring parties, and others have similar experiences and suffer no distress for days and weeks, the men often actually gaining in health, seldom losing. If the circumstances be cheerful, such competition, overcoming the forces of nature, is salutary. If peril, strained attention or tyrannous officers complicate the conditions, ill health may appear early and is then often severe.

When to sleep is again a matter of opinion. Early rising is by common consent a salutary custom, especially when the day comes early, not otherwise. It is agreed that more sleep is required in winter than in summer. The best sleep is had during the hours of darkness. The mind is clearest in the early morning, and those who can utilize this period for intellectual work are capable of turning out the best products. Some cannot do so, or think they cannot, and working at night yet furnish excellent results.

The sleeping room should be cool, abundant air being always admitted. This should not be interpreted to mean that the room may safely remain intensely cold. In the modern treatment of tuberculosis fresh air is recognized to be imperatively needed all day and all night. Artificial heat can, and should, be supplied along with the fresh air, till the temperature of the room be at or near 50° F. or 55° F., for some even 60° F. Above this no one in health is likely to sleep in perfect comfort. Babies and invalids need a heat of from 60° F. to 70° F., even more at times, yet all require the fresh air, or fullest ventilation, which means air in motion.

Fever patients, even those suffering from pneumonia or bronchitis, may sleep with safety and great advantage in a thoroughly ventilated cool room and with no more covering on them than is needed for protection from sudden changes of temperature which might send their body heat down below normal. It is needless to particularize as to the offensiveness, deleteriousness, of body and lung exhalations emitted by those asleep. This is more than apparent, it is actually greater by far than when awake, and demands prompt removal and an abundance of good air to replace that which is vitiated. There are those who still cling to the shred of demon influence which causes them to "dread the night air" when spirits range and goblins weave evil spells; when dis-

eases waft in at open windows, keyholes and other joints in the harness of defense. Since the pestiferous mosquito has been proved the chief carrier of mephitic paludal diseases, insect nettings are deemed sufficient to ward off evil nocturnal influences. Sleeping in a close exhausted atmosphere is so promptly and painfully punished by discomforts, that it would seem there could not be two minds on the matter. Yet many refined and educated folk still prefer the shut windows. Curiously enough some woodsmen, farmers and others who live much in the open air incline to a hot room for sleeping. To my sorrow, I have more than once been a victim to this prejudice.

Recent investigation on ventilation would seem to show that vast amounts of raw outside air are not desirable; that motion of air is needed, also a reduced moisture. Most opinions still incline to the desirability of abundant and frequently changed air.

Body clothing at night should never be of wool next to the skin, and should be loose, not tense, permitting the ready passage of surface air. Bed clothing should not be too close of texture, blankets being preferable to dense "comfortables" and not "tucked in" too closely. Air should be allowed to pass occasionally under the sides at least as one turns about more or less freely. I have proved this while camping in the open in bitter temperatures, thus using less covering than those who slept in bags. Indian guides often sleep with their heads covered and their feet bare to the fire. Even on the long trail I prefer pajamas to close fitting day underwear at night. Under these circumstances, too, occasionally rising and warming by a fire gives better rest than to stay close in a sleeping bag all night long. As to beds the firm mattress with springs is vastly better than soft clinging surfaces.

Some people sleep with a profundity, a completeness, from which they can only be aroused with difficulty. They occasionally wake unrefreshed with confusion, headaches, stiffness and soreness of limbs. This usually betokens some abnormality in health which should be corrected. Such deep somnolence is not so restorative as the lighter forms of slumber. Moreover, limbs become cramped, hence nerves and blood vessels suffer hurtful pressure, by long remaining in one position; the integrity of the internal organs likewise is imperiled by passive congestions.

Darkness invites to sleep, light, even though the eyes be closed, penetrates the lids and stirs the consciousness. Hence it is wise to exclude light if one must sleep after the sun has risen. A useful device is to cover the eyes with black cloth, or a handkerchief folded, or to use a screen, rather than exclude daylight from the entire room, which too often means exclusion of air as well. Those whose heart and arteries lack tone may give attention to this to secure, or to maintain, sleep. Day drowsiness and night wakefulness indicates often a cardiac weakness demanding attention. Conversely, high pulse rate is usually present in those who sleep over-heavily. Soon or late mankind must come to adopt the recommendations often made, but thanks to the movie bosses not yet accepted, of utilizing the daylight more and using artificial light less. It is an economic recommendation of vast significance.

One man who claimed he had not slept a full night for thirty years was thus put to sleep in my office and after a course of treatment he remained free from this distress. That admirable instrument, now unfortunately out of fashion, the bicycle, cured scores of insomniacs by affording patients the means of prompt lowering of blood pressure by a ride just before bedtime. Few

measures are more prompt, certain and permanent.

While eating some light food often invites to slumber, an over-full stomach is frequently a cause of shallow or distressed sleep. Many forms of digestive derangement, liver troubles, toxemias, etc., impair sleep even in those who are under the impression they have powerful digestions. Nothing wakes some people so certainly at evil hours as gaseous distension or an over-acid stomach, relievable by a simple alkali or charcoal. The bowels sometimes are best evacuated before bedtime; if full they may cause much loss of sleep. In short, as Emerson says of all health, of which sleep is a major item, it is not to be bought, it must be *earned*; and wisdom, frugality, self-restraint, industry, perhaps all cardinal virtues, contribute to this boon.

A complete circulatory balance is needed for those who would sleep most refreshingly. One of the best means to secure this is by exercise before retiring, enough to distribute the blood to the surface and muscles, hence to relieve the tension in the vessels of the brain. Also light food at bedtime relieves fatigue by withdrawing the acids from the blood. High vascular tension is often a cause of insomnia; it may be continued or only due to psychogenic causes, worries, morbid tension, over-excited circulation or toxins. Hence the common device of a hot foot bath, entire neutral bath (at body temperature) or even a cold bath to induce reaction, may suffice. To execute some systematic movements with little or no clothing on is better; in cold weather use extra clothing, such as a sweater. Certain movements, especially those of the neck and shoulders, are particularly useful. A series of movements I devised in treating a chronic neuroses put many patients promptly to sleep. Also certain manipulations of the neck, especially a distributed pressure over the posterior occipital nerves, have in certain cases of obstinate insomnia in my hands been followed by complete cure.

Conditions Which Retard Sleep

Sleeplessness may be merely a relative discomfort, a symptom of weakness, or at times the pre-phenomenon of grave mental disease.

The causes of insomnia are physical, mental, moral, or a combination of all or any. Some hypersensitiveness, easily disturbed folk seldom, they say never, sleep soundly or completely. The power to sleep is the basis of vital economies, the equivalent of extra stores of vigor, oftentimes the co-efficient of recuperation. Obviously pain as an origin of insomnia should always be removed or mitigated. Causes for pain so placed as not to produce actual suffering may be beneath the threshold and still induce manifold hindering distresses.

Causes of insomnia at present recognized are less physical than affective, such as emotional imbalance or reactions, worry, anxiety, excitement, temper, mental overstrain, grief, remorse, fixed ideas, morbid fancies.

Bad emotional habits, "fear thoughts," and their correlate self-consciousness, anxiousness, trepidation, tend to keep the brain cells in a state of unrest. The sufferer from wakefulness becomes a slave to morbid fancies, self-pity, who growls over-night about trifling discomforts, or other disturbances of consciousness may dominate attention.

Causal forces that sustain the worry habit are unhealthy, self-analytic or self-critical or brooding introspective. For relief the mind should become concentrated on some wholesome or absorbing object or subject well beyond petty self-centering ideations. A touch of cool, sane realities will remove the shadows; so of brisk contacts with the world of fact and truth, also sympathy and help from others often suffices.

The worry habit is a fair indication of a selfish, untrusting temperament; it springs from skepticism, pessimism, lack of faith in the intrinsic goodness of the scheme of nature. The tendency to dwell upon dark pictures, rather than bright ones, is partly temperamental, but mostly due to unfortunate up-bringing. A sound creed is needed to govern life, grounded on clear conviction that the universe is on the side of order, peace, self-control. Sleep is much thwarted by states of irritable weaknesses and this will be remedied by invigorating measures.

Poor sleep may be induced by badly systematized labors. One's work should then be better planned, reorganized on economic lines of effort. Then repose will come.

Men, and women too, undertake too many diverse enterprises. Thereupon confusion and anxiety leads to "nervous breakdowns." Insomnia is a common result, leading one to commit blunders and induces fretfulness. The under currents of life becoming turbid with the makings of regret, chagrin, uncertainties in outlook which form fertile grounds for disharmonies and one of the first manifestations is shallow, troubled, unrefreshing sleep. The key to successful slumber is serenity, equanimity, poise in all forces and directions.

To alleviate insomnia: bear in mind the psychologic mechanism of sleep. In waking states we lend ourselves to full interest in external things. In sleep this energizing no longer exists; we close the shutters of the mind and retire to our deeper, lower thresholds of consciousness.

Sound sleep is sure to follow self-development in disinterestedness. Whatever induces a state of mental or physical monotony invites sleep.

For distressful insomnia the remedy is training in self-poise with a view to achieving a state of mental monotony. The first step in cure is renunciation of all artificial agencies, such as stuporifics. The brain is the highest product of evolutionary processes, is easily injured by any or all narcotics. Exclude all excessive stimuli; all multiplied excitations of nerve-paths or nerve-endings, which convey sensorial impressions; in particular excess of light and noise, also of skin irritations. It is well to avoid bodily stagnations by indulging the urge of disused muscles. Indeed a sovereign remedy for delayed or unsatisfactory sleep is gentle outdoor exercise or even indoor muscle uses, especially rhythmical forms, and soon before retiring. So of contrasts of heat and cold, as of a warm sponge bath followed by a cool affusion. Even better is the neutral immersion bath at body heat and for twenty minutes. Pain and physical disorders and distresses are the province of the physician.

Fatigue is not the sole or ultimate incentive to sleep, yet it predisposes to it. Never let fatigue proceed to the point of exhaustion, or sleeplessness may result. Weariness is followed by the desire for sleep; it establishes the organic need for adequate rest.

Sleep is the defence reaction to body formed poisons. Normal habits related to sleep should be conserved—a suitable time, place and conditions. The best sleep is taken at night time. If drowsy by day and wakeful by night, the cause may be circulatory trouble, usually a weakness of the heart muscle.

Whatever one expects is likely to take place. Hence, expect sleep at the right time and in the right amount; let nothing defer or interfere. Secure and maintain the favorable, the normal physical conditions of skin, of digestion, or special senses, of teeth and in particular of muscles. See that the eliminating organs act normally

by simple means. Reform all faulty habits of hygiene. A physician is tempted to offer a hypnotic but any wise sympathetic friends can do most by candid counsellings. Proceed by explanation, encouragement, suggestion, reassurance, commendation to relax tension, or at need by command, to secure mental distraction. Achieve a philosophic attitude toward life and destiny which is the essence of religion. Approach the time of rest without anxiety, with indifference, with full expectation that all will be well.

No two cases of insomnia are exactly alike, each deserves intelligent attention. Common denominators of insomnia exist. Fortified by knowledge almost anyone can readily become an expert. Among the simple, practical and efficient means of falling asleep are these: when at bedtime one seems provokingly awake, it is well to take a walk outdoors for half an hour. The whole circulation thus becomes equalized, the blood distributed, the reflexes readjusted, the surface warmed, the head cooled.

If then after a short sleep one wakes broadly, and after reasonable efforts at tranquility has still no sleep it is well to get up, wrap warmly and move about, busy one self with trifling duties, arrange one's room, clothes, setting objects to rights, etc. At such times I have often done many things long neglected, too trifling to bother with in busy daytime, but which justifies time and attention. The doings being monotonous one readily becomes drowsy. Sometimes inspired ideas thus come while keenly alert to the facts, and they should be promptly written down; a neglected correspondent, a detail of some point having escaped attention during the day. Such doings are the equivalent of substitution of ideas and, when achieved, the natural drowsiness will creep upon one's over-wrought consciousness.

Justification of Early Rising and Open Air Activities

The time for sleeping is, by all the evidence, during the night. The hours necessary for each one are from six to eight hours, beyond which, except for particular or temporary reasons, no more needed. The mind is clearest, the body most renewed, after a normal sleep supply in quantity and quality. Hence in order to secure the best renewal and applications of energy, the earliest waking hours should be utilized. An all round functional balance, including as it does readjustment of all body energies, is a *sine qua non* for productivity of any character.

During sleep the circulatory and the thermogenic mechanisms are in the resting phase, quiescent, poised and becomes prepared and adapted for the waking activities. These activities deserve prompt employment in order to carry on the processes of equilibration, adaptation and economic application.

To remain in bed beyond the needs for rest, is useless, makes for stagnation and various retrogressive changes more or less hurtful, at the least it is wasteful of the energy content. The effects produced retroact upon the volition, retarding the niceties of automatic readjustment, also the quality of stabilization so valuable for efficient comfort and efficiency in the life of relationships.

Habit formation is notoriously a dominant force for good or for evil, inducing static effects upon the cellular as well as the cerebral consciousness. Lying in bed unduly long makes for a disruption of economic automatisms or habits throughout the organism as a whole.

When the energy fund has been renewed sleep then becomes a deplorable, a reprehensible squandering to prolong the negative phase. Best economies of functioning, or conservation, and of production are served by putting the energy content to use, to per-

formance, not only for storage but for proficiencies.

The quality and availableness of energy is of vastly greater value than the quantity. Purposive use of energies is the basis of not only husbanding the fund but of advancing the efficiency of those energies.

The use of any attribute or function or part of the body is work, performance, exercise. Through use, especially advantageous use, of each and all the body and mind equipment, is not only that equipment kept at par but ameliorated, enhanced, reconstructed, but also the foundation laid capable of being transmitted to offspring. Thus is the coefficient of vigor of the family, the race, raised or lowered in accord with the inherent potentialities. If the individual does his duty to himself this racial or constitutional index is elevated, if not it is depressed.

Now as to the application of these obvious points to the subject of early rising and activities.

To realize, put in force, the dictum *carpe diem*, it is desirable, and to my mind obligatory, to perform, to function, at the most favorable time and fashion.

The reasons for doing so I have cited, and if they lack cogency there is the testimony of history, for getting busy at the earliest hour feasible, in the exercise of movements whereby the bodily mechanisms are returned to their equilibrium. Man is an animal, at least his soul is encompassed by a complex body to act as temple or instrument for that soul, or spirit, or volition, or personality. In order to preserve, bring to fruition and make best use of the organism as a whole, advantage should be taken of the situation supplied by a renewal of energies and to put them to wholesome use. The energy fund is, in the vast majority, highest in the forenoon. In some a lethargy lingers in mind or body or both till near noon. Such individuals are usually over-wakeful toward midnight, but had far better go to bed earlier than they are willing to do.

Here are some facts capable of verification by any one: by going to bed reasonably early and rising early and rising so soon as the morning comes, the daylight is saved for usefulness. By complying with the instinctive demands of the organism for motor discharges, the balance of all functionings is conserved. Experience teaches convincingly.

That man who claims as a personal experience that he "feels" strangely, unusually, uncomfortably upon early rising and performing activities is arguing from the standpoint of a thralldom to vitiated habits, to ancient over-sophisticated customs or fashions. Anything is convincing enough to one who prefers to be convinced, to act in accord with artificial tastes.

To claim that one thus comes to experience "head-aches," exhaustion, and the like, is to reveal the fact that he has so long practiced erroneous conduct, as to have lost the most precious of possessions, the interpretation of primal instincts, and has become the slave to uneconomic customs or preferences.

Let me cite a typical case: During a long professional career I have personally preached and practiced early rising and activities with the largest benefits. This, you may say, is a phase of preferential belief. No, it is a habit I have formed which has paid me handsomely. Moreover, I have sedulously urged patients of all sorts, ages and conditions of over-sophistication, to do likewise.

Success, in so unconventional, radical and distasteful an enterprise has been far beyond expectation. Yet to urge early rising invites condemnation. It is so much easier to take mankind, "human nature," as we find it and let each do as he pleases. One can thus readily escape popular misconception, blame, ridicule. There is something higher in the

line of professional obligation, viz: to persist in accord with one's scientific convictions, be the consequences what they may.

Some one has uttered the witticism that "the early riser is conceited all the forenoon and sleepy all the afternoon." That provokes a smile and is supposed to dispose of the matter.

I offer an aphorism amply sustained by the evidence. The late riser, the sedentary person, the one who scorns to align his conduct in accord with the healthy animal, is peculiarly liable to the depredations of diseases of metabolism, especially arterial and renal degeneration.

It is well known that an essential part of most, if not all, spa treatments, is to rise early, drink the waters, and walk under specific direction. Especially graded paths form part of most continental spas, called "Terrain Kurs." This precedent is not only conventional but found by well attested experience to produce the best results.

A Doctor's Story

DOCTOR AND PATIENCE

HAROLD M. HAYS,

New York

(Continued from June issue)

CHAPTER XVII

I was agreeably surprised to have Mr. Caldwell, whose servant, Mary, I had operated upon some months ago, call on me one morning.

"Haven't been round, Doctor" he chuckled, "because the wife and I have been very well, thank God, and so we didn't need your services. Can't get rich on well folks, can you?"

"I'm glad you've kept well, Mr. Caldwell," I said cordially. "We doctors aren't anxious for people to get sick. There are always enough people sick without our wishing the hard luck on them. How's Mary?"

"Fine and dandy" he replied. "She has an Irish bloom in her cheeks now. Say, Doctor, you've got one little well-wisher there. She sings your praises enough to make your head turn. Told Mrs. Caldwell the other day that she prays for you every night. She prays for you and your wife and your children."

"We haven't any children yet, Mr. Caldwell." I laughingly informed him. "Only been married a few months."

"That doesn't make any difference to Mary. If you haven't any children now, she'll go on praying for them just the same. Mary is very religious, you know, and she takes longer at her prayers than in washing the dishes. Every soul she loves has the grease washed off him before she goes to bed. Mrs. Caldwell and I come in for our share. Sometimes I'm afraid of Mary's religion. It's too absorbing. We had a servant once who developed religious insanity so bad that we had to call in a policeman. He tied some ropes around her and sent for an ambulance. She was taken to an asylum where she's remained ever since, praying, praying, praying. Ever see a case like that?"

"I used to see many of them when I was an interne in the hospital. The amount of insanity in this town is something frightful. I don't know just what the percentage figures are but they are pretty high. You'd be surprised, Mr. Caldwell, to see the types of individuals in insane asylums and how well they behave themselves. Not one in a hundred can un-

derstand why he's there. He's sure you're 'hipped' and that he's perfectly rational."

"Doctor, what do you mean by insanity?" Mr. Caldwell asked interestedly.

"That's a pretty hard question to answer," I said. "There is no definite line of demarkation between a sane and an insane person. Of course, there are certain pathological insanities, such as general paresis, which are definite diseases; but mania, melancholia, and so on are aberrant mental states which range in degrees from the nearly normal. That is to say there are no doubt many insane people floating around loose, apparently perfectly harmless, who yet at times fly off the handle enough to be called insane. A man with a violent temper is insane when his temper overrides the control he has over his sanity. A person down in the dumps, in a blue funk, from which he is unable to rouse himself for days, is insane. That is to say he has lost control over his sanity for the time being."

"Gee," mused Mr. Caldwell. "Most of us must be nuts sometime or other. I go off the handle once in a while myself."

"Right you are" I said. "Everyone of us does. We can't always have full control over our mentality which is governed by so many outside factors. A discouraging piece of news in the morning paper, a family quarrel, the death of a dear one, the rise in the price of stocks in which you are interested, a good business day, the occurrence of a happy thought, will make the difference between darkness and daylight. These are mainly external thought stabs which make invisible marks in the brain and bring about an associated train of thought which either sends us happily on our way or throws us into the depths of despondency."

"But this is not all. The mental state of the individual is governed to a great extent by the physical reactions of his material being. All of us know that a sick person frequently has a sick mind, that a well person is usually content if not always happy. Yet any physical reaction in the well person may change his mental attitude toward life until he is almost, if not, insane. Constipation, anemia, irritating pains, diseased teeth, recurring headaches, buzzing in the ears, a sour stomach, an accidental injury, any one of these may react on the mentality until the mind balance is lost."

"I'm trying to make you see how difficult it is to define insanity. Perhaps I can make it clearer to you this way. I draw a straight horizontal line. We shall say that all normal, sane individuals belong on that line; that is, they subject elation and depression enough to have neither one interfere with right thinking. All individuals who suffer from periods of prolonged elation belong above the line. All those suffering from prolonged depression, belong below it. The elation, if carried too far, may result in mania. The depression if carried too far, may result in melancholia. But where the dividing line is, none of us knows."

"That's interesting" said Mr. Caldwell. "If a man makes too much money suddenly, he may become so elated that he goes crazy."

"Exactly" I laughed. "Never expect to suffer from it myself, but the term 'money-mad' means more than it implies. Some people are actually money-mad. They spend their money in the most insane manner. Their appreciation of values is gone. Never been in an insane asylum?"

"I should hope not" Mr. Caldwell said, amusedly indignant.

"You'd be surprised to see how mild mannered most of the individuals are. Some of them are refined, educated, cultured and will converse with you intelligently until you get on the one subject on which they are insane. I recall one intelligent engineer who had been incarcerated over fourteen years. He was sure that the President of one of the steel companies was trying to poison him because he was Jesus Christ and knew better how to run the steel company. His arguments for being the Saviour were perfectly rational, only he had started off on a wrong premise and he thinks all sane people are crazy because they can't see his point of view."

"To a certain degree, we have the same kind of people mingling with us all the time. The anarchist, the revolutionist, the obstructionist, some socialists, and so on, are people who argue from irrational premises and so, to our so-called sane minds, are a trifle unbalanced. We only consider them balanced when we think as they do, yet some of our greatest martyrs, Jean d'Arc, for example, belonged to that class."

"Very, very interesting" mused Mr. Caldwell. "Next time I'm constipated, I'll have to come in to see you."

"That reminds me of something interesting" I went on. "Certain doctors claim that there are curable forms of insanity due to systemic infections. This is what I mean. A man works hard. As long as his health remains good, he doesn't suffer from his hard work mentally. Suddenly he goes to pieces. He becomes a tired business man. He collapses. He's a nervous wreck. Sometimes he gets so bad that he is declared mentally unsound."

"There's a doctor in charge of a big insane asylum in Trenton, N. J. He claims that a great many of his patients would never have become unbalanced from overwork if there wasn't some poison in their systems which lowered their resistance. He's looked around for the cause in the teeth, the tonsils, the intestines. In many instances, he's found a pus pocket somewhere. Cultures from the pus have shown lively bugs. Teeth have been removed, tonsils have been removed, appendices have been removed. Result? You'll be amazed. Formerly he was able to cure twenty per cent. of his patients in two to five years. Now he cures sixty to seventy per cent. in one year or less."

"Do you mean to say an infected tooth which doesn't give any pain, can drive a man crazy?" Caldwell asked.

"Hardly that" I replied. "But I mean to say that just such a little thing may be the exciting factor in a man whose nervous system is on the qui vive."

"Say, Doctor, I've got a patient for you" Mr. Caldwell said excitedly. "One of my best friends. Been terribly worried about him for a long time. Bet a dollar, it's his tonsils. He gets quinsy twice a year regularly. He's all in from overwork. I'm going to send him around."

"Have him ring up to make an appointment" I said heartily.

Mr. Caldwell left without telling me why he came to see me. Later he rang up.

"Say, Doctor, forgot to tell you what I came for this morning. Nephew of mine, Frank Mandeville, broke his leg playing foot ball yesterday. Lives over on Park Avenue. His mother rang me up to ask if I knew of a good surgeon. The school doctor fixed him up yesterday. Go over to see him, will you? And say, Doctor, this isn't any charity case. They can pay you right smart for your services."

Things seemed to be coming my way. Only the day before, Dr. Armstrong rang me up to see an "appendix" for him and two doctors, who had read my article on tuberculous glands, had referred cases to me. I don't know just what they thought of me for in both cases I had to go contrary to the expressions in my paper and insist on operation. Of course, I had safeguarded myself in the article by stating that there were certain cases that had to be operated but I felt sure that both these cases had hoped I would be able to treat them conservatively. I made up my mind then and there that a doctor was a fool to assert anything too positively except in individual cases in which he had an opportunity to examine his patient carefully. There were always too many exceptions for any general rule.

Aronson rang me up later in the morning.

"Got a case for you, Snaith" he said. "When can she come up?"

"Any time" I replied. "What's the trouble?"

"Think it's cancer of the breast, but I'm not sure. You look her over and if you think she ought to be operated, send her into the hospital. Get a nice private room, with bath if you can. And get nurses."

"Thanks, Aronson, I'll let you hear from me."

"And Snaith—" Aronson went on hesitatingly. "There ain't any strings attached to this case. They are good, substantial people who want the best doctor in the city no matter how much it costs. Mrs. Weinberg ain't flashy but she can pay you. So long."

I didn't wish Mrs. Weinberg to have a cancer of the breast, but already I could visualize the operation and hardly thinking, I went over to the book case and picked up Bryant and Buck's "American Practice of Surgery."

Evelyn came in dressed for marketing while I was reading. I stopped long enough to tell her all the good news. She smiled at me happily.

"Hope I'll meet Dr. Aronson some time" she said.

"You know, John, I've got a hunch that Aronson would like to play the game straight. He's probably in a bad environment and has had a hard time making both ends meet. Couldn't we have him up here for dinner some night?"

"Sure thing" I said. "I'd like you to meet Aronson, Ev. He's a fine chap. He says 'ain't' once in a while and is rather uncouth. But he's got a brain, a great big brain and I'm sure if he was given half a chance, he'd shine like a Pippin apple on an Italian fruit stand. Tell you what we'll do. We'll invite Doctor Armstrong too. Armstrong would like Aronson and it may pave the way for something better for Aronson."

"John, you're a dear" said Evelyn said. "But—if you have him here with Dr. Armstrong he may send his surgical work to him instead of to you."

"How can you be so selfish, Ev?" I said, "I'm rather surprised at you. I'm not at all afraid. Aronson knows Armstrong by reputation and I wouldn't be at all surprised if he had referred cases to him."

"The way I look at it, Ev, is that the more I do to help another fellow, the more pleasure I get out of life. I've found out already that the man with a selfish viewpoint is usually found out and gets what he deserves. I don't want to weigh everything I do in dollars and cents."

"Nor do I want you to" answered Evelyn undignantly and subdued. "I suppose some doctors would think you crazy for doing some things you do."

"Like what?" I asked.

"Oh—for one thing, Mr. Sullivan."

"Sullivan's pretty low financially at present and a darn fine fellow."

"But most doctors would think you were a bit off not to charge him anything now when you used to charge him five dollars a visit."

"His friendship is worth more to me than his money, Ev. Sullivan will come up in the world again."

"But will he pay you?"

"I don't know and I don't care. I'm keeping track of his visits but I have put his ledger card among the dead ones."

"All right, dear" Evelyn said as she picked up her gloves from my desk. "You're the boss and grand chancellor of the exchequer. Now I'm going out to spend some of your money. What'll you have for dinner, roast beef or hamburger steak?"

"Can I have onions?" I asked teasingly.

"Yep. How can you cook hamburger steak without onions? I'm going to eat 'em too."

The door bell rang.

"There's Mrs. Weinberg" I said. "Expect to get a million dollars from her. What'll I buy you, a Rolls Royce or a Flivver?"

CHAPTER XVIII

The next week was a banner week. I had made more money in those seven days than I had made in the past three months. I hated to think of my cases in terms of money, but I couldn't help myself. I had been worrying along, making both ends meet and making more money than I had a right to expect, but all the same when the end of the month came around, my bank account was pretty slim. I had been waiting for a windfall and at last it had come. Six major operative cases in one week! That was going some. They averaged me about two hundred dollars apiece. Of course I wasn't sure I would collect all of it, but the big round figures in my day book looked pretty good to me.

"Pretty good for my first year," I mused. "I've done much better than most of the fellows I know. Lucky, I suppose. But I've plugged hard. I'm going to pay all my debts, take out more insurance and then try to save some money. Ev and I will have to move to larger quarters. This place won't do after—"

My mind wandered from the money market into Elysian fields—a darling, dimpling child, baby clothes, milk bottles and a crib.

"Wonder how it will feel to be a father?" I glowed as I thought of it. "Hope it's a boy and that he wants to be a doctor."

To add to my happiness and good fortune, Dr. Frank Randolph, a very dear friend and editor of one of the leading surgical journals, 'phoned to me the day before to ask whether I wouldn't like to be an associate editor with him. Golly, my head was so swelled when I told Evelyn about it that I had to soak it in a basin of cold water for ten minutes. Randolph asked me to run in to see him so I determined to go this morning while the running was good.

Randolph greeted me in his usual, kindly way and then spent a half hour in outlining my duties.

"I want you to abstract the surgical literature in the journals I send you and write an editorial once in a while. Not much pay attached to it, Snaith, a few paltry dollars, but the experience will be more than worth while. In the first place, you'll read a lot more surgical stuff, a lot of which is rot. It will teach you how not to do it when you write. Once in a while I'll send you a book to review. You keep the book. You'll probably build up a good library that way."

"I consider it a great honor to work with you," I said gratefully, "I can't thank you enough."

"Just do your work, old man," he replied, "and I'll be more than satisfied."

I felt that it was time to go but Randolph asked me to wait a moment.

He looked at me thoughtfully and then hesitatingly said:

"Been pretty successful, Snaith?"

I smiled self-consciously.

"Don't mind if I give you a little advice? I've been practicing medicine some time you know."

"Fire ahead." Somehow I felt that what he was going to say was going to make me uncomfortable.

"Snaith, I've been hearing a lot about you, most of it good, I'm glad to say. You've been forging ahead pretty rapidly. No objections to that but be a little bit cautious."

"How do you mean?"

"Well, for one thing old man, I'm afraid you're too friendly with your patients. You don't stand on your dignity enough. People like a dignified doctor and it's always well to keep a well defined line between your patient and yourself."

I was amazed. I knew there had been a time, in the dark ages of medicine, when mysticism made the doctor's calling holy, that such a statement would hold true but I didn't feel that it held true to-day. I answered Doctor Randolph carefully:

"I'm afraid I'll never be able to do what you suggest, Doctor Randolph. I'd have to make myself over to do it. It wouldn't work. I'd be self-conscious, unnatural and I'd lose out in the end. I make friends easily you know. I've had lots of patients already, Doctor Randolph, that have become such good friends of mine that they are no longer patients. That may sound funny to you, but what I mean is that they are such good friends that I never think of them as patients and don't care whether they ever pay me another fee or not. I've simply got to be natural with people and if my tendency is to be friendly with them, I'll have to let my tendencies rule. It doesn't look as though it had hurt me much professionally so far, does it?"

"No, I don't suppose so," Randolph answered slowly and quietly, "but the doctors are talking about you, Snaith. They wonder how you do it. You don't want to get in bad with the fraternity. It's alright to have a large practice, but which would you prefer, a large practice or the respect of your medical brethren?"

"Doctor Randolph," I replied hotly, "my medical brethren, as you call them, can go to the devil for all I care. If they are suspicious of a young fellow who gets out into practice and makes a go of it, I'll have a large practice first and then I'll have the respect of my medical brethren. I know enough of men to appreciate that nothing succeeds like success. My medical friends will get to like me when they understand me, when they know I play the game on the level. It seems to me it's about time that all of us dropped humbuggery and became natural. I've watched medical men for a long time, watched my teachers carefully. In medical school, who do you suppose were the ones we fellows went to for advice? The ones with the long black beards and swallow-tail coats with button-hole bouquets? Not on your life. We went to the ones who showed a natural friendly interest, who made us feel that we really counted. Sorry I don't agree with you, Doctor Randolph."

"No harm done, Snaith," he replied. "Perhaps you are

right. I may belong to the old school and (he smiled indulgently). it may happen that we can learn something from you young fellows yet."

I left him to go over to see Mrs. Weinberg at the hospital. I was filled with resentment. It made me boil all over to think that I was being criticized by men whom I had never intentionally harmed in any way. I had nothing but good will toward everybody and I'd gladly have done a favor for any man I knew. It just seemed to me that they didn't want to give a young fellow a chance.

"Wonder who has been talking to Randolph," I muttered to myself. "Why the devil they want to pick on me? I don't understand. Must a bellow be a boob? Must he plod along for years without any practice to keep from being criticized? It's enough to make a man sick. Dammed if I'm going to try to change though. My own conscience is my best guide and I'm going to make those fellows like me sooner or later."

I passed a toy shop on my way. Suddenly I thought of Mrs. Weinberg's little girl whom I'd seen at the hospital the previous day. Before I knew it, I'd gone into the shop and purchased a small set of drawing crayons.

On my way again, I thought of what Randolph had said to me and consciously I felt the little package under my arm.

"Suppose Randolph would think I was a perfect damn fool. Well, I don't think I am."

When I saw little Rachael's look of delight, I was more than repaid. But Mrs. Weinberg's look of gratitude went right to my heart.

"You ain't like most doctors, Doctor Snaith," she said. "You got feelings. You got a heart. You love children, yes?"

"I love them very much, Mrs. Weinberg," I replied. "How old is Rachael?"

"She'll be three years old."

"A beautiful child." Then I stooped over and kissed Rachael's rosy little cheek. A few minutes later I was drawing pictures with her. Suddenly I wondered what Randolph would think if he saw me. I wasn't much concerned. I had turned myself into a kid again and was enjoying myself hugely.

I took Mrs. Weinberg's withered pale hand in mine as I was about to leave.

"You're a wonderful man," she said to me adoringly. "Doctor Snaith, you will be loved by everybody. You done wonders for me already by your operation, but you done wonders in other ways, too. You don't make me feel that I'm only a patient—only a case. You make me feel that I am a human being and need to be treated with a little affection." She began to cry quietly. "But that ain't all, Doctor. You love little children. You love my Rachael. Rachael and I won't never forget. When she grows up and I'm a grandmother, Rachael and Grandma will remember you. We'll remember you."

I left her softly sobbing, a happy woman. She wasn't happy only because I cured her. She was happy because I had shown a little human decency. For the twenty-five cents I spent I had given uncountable pleasure.

Down in the lower hall of the hospital I met Doctor Armstrong, who was quietly smoking a cigarette in the surgeon's room, resting for a moment after his morning's work.

"Hello, Snaith, sit down and have a cigarette," he called over cordially.

(Continued on page 170)

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ARTHUR C. JACOBSON, M.D.

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Perspective and Anchorage

Medical historiographers write about the period of the systems in medicine, such as the Animism of Stahl, the Ether of Hoffman, and the Solidism of Cullen, just as though systems had passed forever. "This," says Ruhrah, "was the period when physicians were more given to theorizing concerning disease, than they were in making clinical studies, or observations on the post mortem table, but the work of Morgagni and others was soon to make a change for the better."

But we are now in the midst of what might be called the super-science system. What reason have we to believe that this system, for all its strangle-hold on the profession, will not in its turn give way to another.

In the midst of whatever fashion may prevail, the medical individualist should hold fast to some anchorage, and there is none better than an adherence to what we make bold to call the humanistic art of medicine. This must always underlie passing phases.

An Unsuspected Anaphrodisiac

Very many dreadful things have been charged against the automobile since it became a part of our civilization. Special fractures and cramps and all sorts of other local troubles have been identified with it. Then there is the so-called automobile face. There are also the metabolic difficulties that result from the abjuration of walking. Finally there is what Willa Cather, in her "Youth and the Bright Medusa," calls "the common sort of ugliness that comes from overeating and automobiles—fat horrors."

Now a new offense has been charged against the car. It seems that it is one of the factors in our modern life favoring a loss of virility in the sexual sphere. Gentle-

men who drive a good deal are supposed to become less sprightly in this respect. The wear and tear incident to threading our traffic-choked streets occasions fatigue that affects all the powers, particularly the sexual powers of men no longer young.

Auto-sedation and auto-impotence promise to become new terms in the vocabulary of the genito-urinary man and the neurologist.

There is a silver lining to every cloud, even to this one, for there are not a few of our fellow citizens who require grievously a really potent anaphrodisiac.

By prescribing it we may be instrumental in keeping certain gentlemen out of the divorce courts who now employ chauffeurs. We should say to them: Drive your own.

What Much Soldier Insanity Means

The investigations of the American Legion reveal a bad situation as regards the increase of insanity among veterans of the late war. The number of cases is extremely large and they are said to be increasing at a most disquieting rate. The Legion estimates that the peak of necessity for hospital beds will be reached in 1927.

What further proof than this do we need that modern civilized men are unfitted to engage in warfare?

Infection Depots for Juveniles

There are two places meriting attention as infection depots wherein the juvenile populace may pick up germs with special facility. One of these places is the photographer's studio, where one child after another is given the same toys to play with while the artist is watching for promising poses. The other place is the pediatricist's waiting room, where every variety of bug is democratically exchanged by the thronging mobs of children who for hours pule, perspire, regurgitate, cough and purge while the great man works.

No doubt in some instances there is enlightened prophylaxis, but this is certainly not true of most of the places we have cited as infection depots.

A New Disease

A large number of people suffer from the lecture habit. Most of them are said to be women. They prowl about from one talk to another with unceasing pertinacity. In the morning it may be some current-events forum, in the afternoon a discussion of new thought, in the evening an exposition of spiritualism. On Sunday it is the same, perhaps a church service in the morning and a lecture on labor or bolshevism or socialism or art in the evening, either in some church or hall.

The *raison d'être* of the lecturer is plain enough, in short, the economic urge. One also understands the occasional seeker after instruction or amusement as regards the audiences. But it is the perpetual audience group, the hardened habitués, whom we are pointing out.

These addicts, we should say, possess no intellectual resources of their own. They are the higher morons, for whom no tests have been worked out because they are not anti-social or dependent. They represent a plane somewhat above the movie fans.

It is really not a new disease that these people present for our consideration, but a new manifestation of an old deficiency.

In the olden days the prototypes of this group indulged in gossip, tea inebriety, church meetings, etc.

Perhaps our title should have been: AN OLD DISEASE.

Names

We shall begin to think better of our American civilization when we see fewer names over the doors of our institutions like Asylum for Abandoned Babies, Foundling Hospital, Refuge for the Destitute and Friendless, Home for Incurables and Home for Consumptives. Other atrocities will occur to the reader. It is said that you can gauge the civilization of a nation by the status of its women, or by the infantile death-rate. Well, you can also gauge it by the names of its institutions. They are one of the things which make it difficult, as Henry Adams said, to contemplate our society without a shudder.

And this so-called civilization of ours can be estimated still more nicely by the frequency with which the word charity is used. When the Department of Public Charities of New York became the Department of Public Welfare a great step in civilization was signalized. The fact that the men in charge of such a municipal department in this year of grace are thinking in constructive terms of welfare and not of charity is most significant and heartening. The name symbolizes a veritable revolution.

Such names as we have cited in the first paragraph of this editorial are nothing less than a disgrace to civilization and reveal a degree of barbarism almost unbelievable in this age of relative advancement. Those responsible ought actually to be enjoined to show cause why their use should not be discontinued.

These monstrosities give the lie to the professions of the directors, revealing unwittingly, as they do, a lack of sensibility and imagination and a coarseness of fibre worthy of Attila's Huns.

Unfeeling crudeness of such sort does not seem the proper equipment for this field of endeavor.

All of which is doubtless quite unintelligible to those capable of continuing the offence.

done, the Clementis, knowing it was useless to attempt a search themselves, finished dinner and read the Sunday papers.

It was 3 o'clock yesterday morning when Michael was heard from. It was an indirect message stating that he was waiting for his father in the Coney Island police station.

Clementi mustered relatives and all went to Coney Island, established a claim to Michael, who was disguised behind a film of chocolate, salt water, taffy and sand, and took him home. He was bathed at 5 and put to bed, but he was up at 7 and ready to eat breakfast and start for school.

From the numerous statements and alibi glibly recited to the police by Michael it appears that he never went within two blocks of school. He hopped up on a motor truck near his home and rode to Manhattan. At Park Row he deserted the truck for a subway train, sneaking by the ticket taker and reaching the train platform before he was seen. He rode to some station on the upper East Side and then got off and walked over to Fifth avenue. A bus was passing Sixty-fifth street as he walked through to Fifth avenue and he ran after it. The conductor in charge told the police that the boy raced up stairs and hid himself under a seat.

At Seventy-fifth street, after half a dozen women claimed by the boy as his mother disclaimed the relationship, Michael was handed over to Sergeant Monahan of the East Sixty-seventh street station.

About 6 o'clock in the evening word reached Clementi that his son was again waiting for him at a police station. He gathered the family together and hurried to Manhattan and uptown to claim him.

Michael's eyes popped open when he saw the family. "This'll be the last time, pop, honest," he said. "I'll go to school in the morning."—*The New York Herald*, May 10, 1921.

Miscellany

CONDUCTED BY ARTHUR C. JACOBSON, M. D.

How Tonsillectomy Promotes Initiative

Michael Clementi, 6 years old, believed to be the champion among all the youngsters in this part of the country in the matter of running away from home, was claimed from the police at the East Sixty-seventh street station recently for the forty-fifth time in ten months. His father, Salvatore Clementi, of 149 President street, Brooklyn, accompanied by his mother, two grandmothers, an uncle and three cousins, officiated at the claiming ceremony. There was no public exhibition of punishment.

Young Michael is known by every police department within a day's motor truck hitches from President street, Brooklyn. His yearning to hop on motor truck tailboards was developed last July, soon after he was operated on in a Brooklyn hospital for overgrown tonsils. He hasn't missed a week since then and for the last five weeks he has disappeared twice weekly. He ran away Sunday and again at 9 o'clock yesterday morning, and it is possible, therefore, that this week he will set a new record for himself by making it three straight.

Sunday afternoon, when the soup was being served in the Clementi home, Mrs. Clementi looked around and saw an empty chair. Michael was gone again, a search of the house revealed, and dinner was abandoned, while the police were being asked please to guard all ferries and bridges and try to keep him within the State. That

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"Don't mind if I do," I said, as I took a cork-tipped cigarette out of his flat silver case.

"How's your appendix case getting along?" he asked.

"Couldn't be better."

"Glad to hear it. Sorry I couldn't operate the case myself, but I've been infernally busy."

"To turn the phrase around, 'what's one man's poison is another man's meat.'"

"Glad they came to you, Snaith. They aren't very wealthy people, but they are well connected and they are very grateful."

"What'll I charge them?" I asked.

"I'd make it about two hundred dollars. It isn't much of a fee, but that's all I would have charged them. You'll be paid a hundred times over before you are done."

Mentally I deducted one hundred dollars from my first year's earnings. I had charged them up three hundred dollars. However, I determined to take Doctor Armstrong's advice.

"Got a moment to give your opinion about something?" I asked.

"Sure thing."

So I told him what had happened that morning. I tried not to leave out a detail of what I had said to Randolph and what he had said to me.

"You're perfectly right, Snaith," he said emphatically. "I don't know the man who spoke to you this way. I don't want to criticize him, but take it from me, don't let any man influence you to be any other than what you are. When you get to be as old as I am, you'll

appreciate the fact that most patients want you to know them intimately. Of course, one can carry that too far, so far that the patient appreciates that there is a motive in his interest. That is as unnatural as holding yourself too much in reserve.

"Take my own case. I have always made friends easily. In the beginning my medical brethren looked at me quizzically. But gradually they began to see that I was a half-way decent fellow and wasn't trying to hog it all. What has been the result? There is hardly a medical society that I have ever belonged to where I haven't been president sooner or later. I'm still the same kind of a doctor. I joke with my patients. I play on the floor with the kids.

"Ever see me build blocks?" he asked laughingly. "I'm the greatest little block builder you ever saw. But—Snaith, remember one thing. If you ever build blocks, don't forget to knock them down. More than half the fun is in knocking them down.

"I never told you about Mrs. Langdon, did I? Well, it happened many years ago. She had a little crippled boy—Dick Langdon, you know. You read about him in the doings of the four hundred now-a-days. Mrs. Langdon was a high strung little woman with a body under a hundred pounds. She hated doctors. Dick had been crippled since birth—congenital dislocation of the hip. She'd been around to one doctor after another with him until she had given up in disgust. No one seemed able to do anything for the poor little fellow. He had become so terrified that the sight of a doctor drove him frantic.

"I was pretty young then—it's over twenty years ago. She heard of me through one of the doctors at the hospital. She sent for me.

"I'm almost afraid to have you see him, Doctor," she said in a distressed tone of voice. "He's been so tortured that he can't stand much more. You'll be gentle with him?"

"I'll try," I said.

"I'll have him right down," she said.

"Where is he now," I asked.

"Up in the nursery playing with his blocks."

"Don't bother to bring him down, Mrs. Langdon," I said, "Would you mind taking me up to the nursery?"

"She looked at me inquiringly.

"We walked up to the third floor and into a large room which had been turned into a huge nursery. The walls were papered with flying birds of all kinds and colors. In the centre of the heavily carpeted floor was a beautiful, little, dark-haired boy of three or four years. His cheeks were very pale. His big luminous eyes looked at you adoringly. His useless legs were curled up under him. He was surrounded with papier mache blocks which had pictures and letters on the six sides.

"Hello, Dick," I said cordially, "what are you doing?"

"He glanced at me curiously.

"To make a long story short, I got down on the floor with him and played blocks for over half an hour until he was laughing as joyously as any normal child. Then I got up to go.

"Good-bye, Dick," I said. "Shall I knock 'em over, sky high into wiggledy-higgledy?"

"In a moment our castle was on the floor.

"What's your name?" he asked in his soft, lisping baby voice.

"King Strong-arm, Dicky. Would you love Strong-arm if he was a doctor, Dicky, and never hurt little boys?"

"Yeth," he lisped.

"I left him there with his demolished castle.

"When we got down stairs, Mrs. Langdon looked at me in a funny sort of way.

"You never examined him, Doctor," she said.

"I know it. Don't have to. We both know what's the matter with Dicky. I'll cure him if you'll let me. I must first get his love and confidence. The rest will be easy. If you don't mind, I'll drop in to play with him every once in a while."

"I did just that. Mrs. Langdon couldn't get over the way I handled him and spoke skeptically about me to some of her friends. It got round to me as those things always do. 'And you know,' she said, 'I'm rather afraid to trust a man who's got so much time on his hands.' A month later I operated on Dicky. He gave his consent just like a grown person and we've been great friends ever since. Mrs. Langdon died a few years ago. She left an enormous estate. She left me twenty-five thousand dollars."

I was considerably more encouraged when I left Doctor Armstrong. He accepted my invitation for dinner on the following Thursday evening.

CHAPTER XIX

Mr. Caldwell's friend came in to consult me a few days later. I took a detailed history of the case and then gave him a very thorough examination. He seemed to be immensely pleased with the care I took and commented upon it.

"You're the first doctor who has taken the trouble to go over me from top to bottom," he said. "Do you think you can do anything for me, doctor?"

I smiled at him encouragingly.

"Guess you can be fixed up O. K., Mr. Pierce. As far as I can find out, you're very much run down. When did you last take a vacation?"

"Never had one" he answered. "Never felt that my business could get along without me."

"Same old story, isn't it? You busy business men think that you are so all-important that you are sure everything will go to pot if you aren't on the job all the time. As long as you are not sick enough to go to bed, you keep your noses to the grindstone. Supposing you were so sick you had to go to bed? What would you do about your business then? Don't you think it would go on just the same? You'd need someone down there who could help you out. You'd have to.

"It's ridiculous for a man as successful as you are to say that you can't afford to take a vacation. You stick round trying to get well on doctor's prescriptions instead of inhaling free, fresh country air which could give your lungs a cleaning out. You finally get to the stage where you have to take a vacation—and then it's a long one. Why not be sensible about it and realize that a few week's rest taken periodically may save you from taking a rest which may have to be extended for months? I've always noticed that the most successful business men are those who are able to systematize their affairs in such a way that they can leave their business at any moment. I remember one expert saying that the only really successful men he knew were those who trained the men under them to do all their work while they did all the thinking and that the best time to think was when they weren't at the office."

"That's all right, Doctor, but when your business is as personal as mine is, no one can take your place."

"What if you should die?" I asked.

"Oh, that would be different. The business would

have to be run differently. What I'm after now is to know how to keep from dying."

"First of all, Mr. Pierce, you'll have to have your tonsils removed. I am going to take a culture from them to send to the laboratory and find out what specific germs are there that are causing your troubles. I'll have a vaccine made if I think it necessary."

"Go to it, Doctor" said Mr. Pierce determinedly.

"I'm going to refer you to a throat surgeon, Dr. James Harmon, who, I think is one of the best men in town. I'd rather he'd remove your tonsils."

"Why don't you do it, Doctor?" Mr. Pierce asked.

"I'd like to, Mr. Pierce, but it is particularly necessary that this job be done perfectly and that can only be done by a trained nose and throat surgeon."

"I thought a tonsil operation was a simple thing and that any doctor ought to be able to do it."

"That's what a great many people think," I answered smiling. "The tonsil operation is simple and devoid of danger when performed by the expert. The ordinary surgeon is no more capable of performing it than he is able to remove a cataract from an eye. It is a specialized piece of work—that is if you want the best results."

"Seems to me you have to go to a specialist for everything now-a-days" said Mr. Pierce.

"That's almost true. It is much better that it is that way. The practice of medicine and surgery has advanced so greatly that it is utterly impossible for one man to know it all. And the strange part about it is that the more you confine yourself to one special branch of medicine, the more you appreciate how much there is to know of just that one little branch. Moreover it stands to reason that the man who confines himself to a specialty, knows more about that subject than the man who does general work. Of course, just because a man calls himself a specialist is no reason why he is a good one."

"Where does the general practitioner come in, Doctor, if you say that a man can only be a good doctor if he specializes?" asked Mr. Pierce.

"I didn't say that," I continued. "There are many good general practitioners. There will always have to be general men. But the general practitioner today—particularly in our large cities, makes himself a sort of distributing bureau. You might call him a clearing house. He has under his care a number of families who look to him for guidance in everything from family quarrels to measles. If he is a wise man, he surrounds himself with every specialism in medicine. His success depends upon how much he appreciates his limitations. He doesn't hesitate to say, 'I don't know' and insist on a consultation in a case where his limited experience might lead him astray. The general practitioner is an invaluable necessity. We couldn't get along without him for when you come right down to it, the majority of illnesses are mild and the assurance of a trustworthy doctor is worth more than the medicine he gives."

"But there are many general doctors who do all sorts of surgical work, aren't there?" asked Mr. Pierce.

"I'm sorry to say that there are. Some of them do good work too. But there is a sinister motive for doing this work—work which they know they are not capable of performing in many cases. No one has any objections to a man doing any kind of work which he knows that he can do well. A general practitioner may be a good specialist in many lines. For example, I know many children's specialists who

do tonsil and adenoid operations in children and open up ear drums in abscessed ears, who do the work as well as any specialist could. No one can criticize them for that. The only objection I have is that if a man is successful in a specialty like children's diseases, he isn't training himself as a surgeon and some day he is coming up against a difficult case which may terminate disastrously. The notoriety that results will do him a certain amount of harm that it will take him a long time to live down. In the long run, he is likely to hurt himself for assuming responsibility for work outside his field.

"It may seem strange to you to have me tell you all this, Mr. Pierce, but I want to impress upon you why I think it so necessary for you to have a specialist operate upon you. I have removed many tonsils and I am more or less satisfied with the results but in your case it is absolutely necessary for no vestige of tonsil to remain. I am interested enough in your welfare to see that you get in the best possible hands. Take my advice and see Dr. Harmon."

The following Thursday I went over to the hospital to see Dr. Harmon perform the operation. His excellent technique left nothing to be desired and convinced me more than ever that in a difficult case like this, the general surgeon is far better off to turn the patient over into expert hands.

It is almost impossible for anyone to conceive of the wonderful progress that has been made in surgery in the past twenty years. One has only to take the simple appendix operation as an example. Even within my time, I can remember when a simple operation on the abdomen meant that a patient had to stay in bed for from two to three weeks. To-day he is allowed out of bed in five or six days. Moreover, there is hardly a part of the body in which a surgeon is afraid to venture. The brain is explored and sometimes tumors removed, diseases of the spinal cord are operated upon, the mastoid operation has become an everyday affair, foreign bodies, such as bullets, etc., are removed from the heart muscle, the chest cavity is widely opened, bronchoscopes are inserted into the lungs and foreign bodies, even turned safety pins, taken out, the electric light can readily be inserted into the stomach, ribs may be detached to make new noses, bone from the leg even is chipped off to restore various defects, arteries and veins are mended with tissue taken from other parts of the body. The advance in medicine has been almost as satisfactory although perhaps not so spectacular. The administration of vaccines, the use of the extracts of various ductless glands, such as the thyroid, the employment of the X-ray in the diagnosis of chest and intestinal conditions, have placed medicine on a new basis. The American medical mind is being scientifically trained. It is any wonder, that one can't know it all?

"I enjoyed watching your operation very much," I said to Dr. Harmon after we had seen that Mr. Pierce was comfortably placed in bed. "The nose and throat specialist has to be some surgeon. In lots of ways I think his fingers have to be more dextrous than the average surgeon's."

"I hardly believe that," said Dr. Harmon. "But there is no doubt about it that specialism in this line has gone through a great metamorphosis. In the early days, the men who did nose and throat work were not trained surgeons. They had to call in the general surgeon to help them out. But the general surgeon knew very little about nose and throat conditions and cared less. What was the result? The

(Continued on page 20)

DIGITALIS MEDICATIONORALLY-INTRA VENOUSLY
OR INTRAMUSCULARLY

is obtained in full degree, promptly and, potently



by the use of

DIGALEN
"Roche"

From druggists everywhere in

VIALS AMPULS TABLETS
and **HYPODERMIC TABLETS.**Free Trial Supply
and Literature from**THE HOFFMANN-LA ROCHE**
CHEMICAL WORKS ~ NEW YORK**The
Management
of an
Infant's Diet****DIARRRHEA OF INFANTS**

Three recommendations are made—

Stop at once the giving of milk.

Thoroughly clean out the intestinal tract.

Give nourishment composed of food elements capable
of being absorbed with minimum digestive effort.

A diet that meets the condition is prepared as follows:

Mellin's Food	4 level tablespoonfuls
Water (boiled, then cooled)	16 fluid ounces

Feed small amounts at frequent intervals.

It is further suggested:—As soon as the stools lessen in number and improve in character, gradually build up the diet by substituting one ounce of skimmed milk for one ounce of water until the amount of skimmed milk is equal to the quantity of milk usually given for the age of the infant; also that no milk fat be given until the baby has completely recovered.

MELLIN'S FOOD COMPANY,**BOSTON, MASS.**

nose and throat specialist had to learn how to operate. It was pretty tough on the patient in many cases but not half as tough as it was to have a man operate who knew only the technical side of the operative work. The self-trained laryngological surgeon of thirty or forty years ago, however, paved the way for the establishment of this specialty on a surgical basis. At first he worked crudely with poorly devised and poorly made instruments. But he worked out certain special surgical principles, many of which are still in use. Some of these men are still living; many of them have advanced with the times and are doing excellent work—discarding old favorite methods and following in the footsteps of us younger men. It was but natural, as young ambitious men came into this field, that they should recognize that nose and throat work was as much surgical as medical. Many men who had been thoroughly trained in surgery began to specialize in this new field. Frequently they worked with the older specialist, learning everything possible from him about the diagnosis of nose and throat conditions and then attempting to eradicate these diseased processes by methods more suited to the times. He often wished to bring his general surgical technic into play; he frequently desired to broaden his field.

"What holds true of our specialty holds true of others too. Take for example, the gynecologist or the genito-urinary surgeon. You will grant that they do more refined work in their lines than any general surgeon could do. To the lay individual, the body is a mechanism with a heart which keeps on working until disease, accident or age stops it. His vision is narrowed because he has no knowledge of the intricate workings of the delicate body structure. Just so, each part of the body is broadened for the specialist because he has more intimate knowledge of that special part in which he has perfected himself. I am sure that if a man made a specialty of diseases of the little finger, sooner or later, he would find enough diseases of it to make the study of it extremely interesting."

I was more than satisfied that I had turned the case over to Dr. Harmon. When I left the medical school I was so cock-sure of myself that I wouldn't have hesitated to tackle any simple surgical case. But my two years of internship had broadened my experience and shut down on my conceit. It seemed to me that the further I went in my medical or surgical studies, the less I knew. It was a good thing for me to feel that way. I knew exactly what my limitations were with the result that I was sure, in my own mind, that I would send a patient to another man if I felt that he could do better work on that particular case than I could. And I went even further than that. If a case came to me on whom I had made a diagnosis of an operative condition, I was perfectly willing to have some other man operate if the patient wished to go elsewhere. A short time before, Mrs. Workman had called me in to see her little boy who, I found, was suffering from acute appendicitis. She told me in the easiest and nicest way she would prefer to have Dr. Winslow, one of our eminent surgeons operate. I cheerfully arranged all the details. I wasn't a bit touchy about it. I had always been of the opinion that people had a right to choose whom they would. My turn come some day.

When I got home, I found Evelyn in the midst of scrubbing and cleaning for the dinner party.

"Get busy, honey" she called. "Get that office of yours straightened up so that it won't look as though

you had seen your last patient just before the guests came in."

I got busy. Can a just-married, hen-pecked husband do otherwise?

(To be concluded.)

Correspondence

The Case of Cusack vs. Morris.

To the Editor of THE MEDICAL TIMES:

On the way to the meeting of the American Medical Association with a group of doctors bound for Boston, I find a general expression of regret that the details of the suit against me have not become available as the case was discontinued. A number of important points were involved.

Some years ago I presented at a meeting of the Surgical Society in New York a man who had lost both testicles in youth as a result of mumps. There was no sex power or feeling. A small graft had the peculiar effect of stimulating the remains of one testicle into development, although the graft itself was absorbed. The patient gained sex power and married.

Three years ago a patient, Mr. H., came to the Post-Graduate Hospital for removal of a small tumor of the leg. He had undeveloped testicles although he was a man in good health and since that time has been married. It occurred to me, having the former case in mind, that a graft of testicle tissue might stimulate the development of the testicles with the effect of perhaps lowering his voice at least, through enzymic response. I told him that if he would come to the hospital on some occasion when I had trimmings from a hydrocele operation I might try these for endocrine effects.

Some time later a patient, Mr. Cusack, was sent to me by his family physician for an operation for double inguinal hernia and hydrocele of the right side.


Many years ago at the Ithaca Hospital, in another case, after a Bergmann operation for hydrocele, there was a return of the condition a year or so later. At the first operation I had removed only the parietal layer of the sac. At the second operation, to ensure a radical cure, I removed the visceral layer, marked off lines with a scalpel, and then with curved scissors removed peritoneum and found that no harm was done if some of the tunica albuginea and adherent tubules were included here and there among the trimmings. Since that time I have regularly done this addition to the Bergmann operation.

Knowing that in the instance under discussion we were to have trimmings of this sort I asked Mr. H. to allow me to use some of the material, small pieces of which, including several kinds of structure, were inserted in the abdominal wall beneath the sheath of the rectus muscles. Incidentally it may be remarked that in this case the tissue was absorbed after the operation. In the case of Mr. Cusack the hernial and hydrocele wounds had become healed to such a degree at the end of a fortnight that I informed him he might return home on the following day. Incidentally there had been a collection of brownish fluid at the hydrocele site which I took to be ordinary serous oozing, at the time when it was withdrawn with the needle. I then left town for a Medical Society meeting at a distance. In my absence it was found that an infection was under way at the hydrocele site with the formation of an abscess. Because of the late development of this complication it was presumed to be a catgut infection.

My colleague on the staff, Dr. S., who had a patient in the next room, was called in to help out with my patient in my absence. He opened the abscess and incidentally asked another colleague, Dr. E., to be present at the operation. Dr. S., Dr. E. and I had previously had a good deal of controversy over the employment of rubber gloves in surgery. In this particular case I had worn gloves as they are discarded in my abdominal work only, for reasons stated in various published contributions on the subject.

The patient gained the impression that I was responsible for his trouble and through Mr. Leo Levy brought suit for felonious assault and \$250,000 damages. Mr. Levy began proceedings in a way which displeased my counsel, Mr. James Taylor Lewis, then counsel for the New York State Medical Society. Because of this legal hitch the case passed into the hands of Mr. Cornelius J. Smyth. Mr. Smyth, examining into the various features, found it desirable to call Mr. George Gordon Battle to his aid. Mr. Battle, having examined me in advance of trial in the presence of the plaintiff and others interested, decided that it was a case which he did not care to try. Mr. Smyth next called in Mr. W. J. Fallon. The case has now been discontinued on the request of Mr. Cusack, who learned the real facts for the first time when Mr. Battle made the preliminary examination before trial.

(Continued on page 22)



Infant Feeding
Diet Materials

**CHOOSE THE BOTTLE BABY'S FOOD CAREFULLY
AND IT WILL GENERALLY BE
MEAD'S DEXTRI-MALTOSE, COW'S MILK AND WATER**

You would not send your patient to a drugstore to ask the druggist to mix up "something for rheumatism," would you?

YOU WOULD WRITE A PRESCRIPTION

Consider the Baby. Infant Feeding means an **INDIVIDUAL** formula too. The physician's prescription for the right proportion of **MEAD'S DEXTRI-MALTOSE, Cow's Milk and Water** gives gratifying results.

Literature and formulas sent to Physicians only

THE MEAD JOHNSON POLICY

MEAD'S INFANT DIET MATERIALS are advertised only to the medical profession. No feeding directions accompany trade packages. Information regarding their use reaches the mother only by written instructions from her doctor on his own prescription blank.

MEAD JOHNSON & COMPANY
EVANSVILLE
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LISTERINE

A Non-Poisonous, Unirritating Antiseptic Solution

Agreeable and satisfactory alike to the Physician, Surgeon, Nurse and Patient. Listerine has a wide field of usefulness and its unvarying quality assures like results under like conditions.

As a wash and dressing for wounds

As a deodorizing, antiseptic lotion

As a gargle, spray or douche

As a mouth-wash-dentifrice

Operative or accidental wounds heal rapidly under a Listerine dressing, as its action does not interfere with the natural reparative processes.

The freedom of Listerine from possibility of poisonous effect is a distinct advantage, and especially so when the preparation is prescribed for employment in the home.

LAMBERT PHARMACAL COMPANY

ST. LOUIS, MO., U. S. A.

In place of Opium

in true asthma, dysmenorrhea, gall-stone and other colics, hic-cough, whooping cough, neuritis, post-partum pains—the therapeutic field is widening logically—

BENZYLETS!

The no-habit, non-toxic, non-narcotic analgesic-antispasmodic; tasteless, no gastric irritation; boxes of 24 globules of the pure drug ethically labelled at your favorite pharmacy.

BENZYLETS

SHARP & DOHME

(Continued from page 20)

It is necessary to correct several points of misconception which have been widespread and of which I have heard not only from various parts of this country but from abroad. It was said that Mr. H. paid me a large fee for the grafting operation. Mr. H. paid me nothing at all for this, as it was simply a bit of side experiment made at a time when I hoped to be of service both to Mr. C. and to Mr. H.

It has been said that I paid a large sum of money for discontinuance of the suit. I have paid nothing at all for this. On the other hand, my counsel, Mr. Lewis, will be witness to the fact that I have urged him during these three years to bring the case to trial at the earliest possible moment. My witnesses in the case were members of the Surgical Society, doctors who had assisted me in previous cases of the sort and who assisted in this particular instance, and doctors who had adopted the same form of operation themselves. The witnesses against me were two doctors whom I did not know personally. They were paid \$150.00 each for examining the patient and they are said to have received their information about the case from a doctor who was not present at the operation. There was no question in my mind of bad faith on the part of these two doctors who were to have been witnesses against me.

A legal point in the case relates to the employment of waste materials without the consent of the party from whom they are removed. Skin, bone and other tissues are so frequently used in this way that it was believed that the point would not require adjudication.

A similar letter has been sent to the editor of the *Journal of the American Medical Association* and to the editor of the *Medical Record*.

ROBERT T. MORRIS.

The Practical Efficiency of Alkalol.

They were on their way back from the recent national meeting of medical men, and the talk turned to the subject of antiseptics. There was considerable difference of opinion expressed by the several doctors participating as to the actual efficiency of such solutions. One doctor, known to be a very successful practitioner, was very emphatic in his expression of opinion regarding Alkalol.

"You may say what you like," he concluded, "but in my mind there is absolutely no doubt of the practical efficiency of Alkalol."

I know it because I have tried it. Having gotten results, I use it. If a patient comes to you with an inflamed conjunctiva, sore throat, tonsillitis or a mouth that feels as if it had been sand-papered, use Alkalol, and note its prompt and satisfactory action.

"It does wonderfully good work in cystitis. I use it both as a urethral and vaginal injection. Its action on irritated or inflamed tissue beats any peace congress you ever heard of. I use it internally as an antacid, particularly in hot weather. You can take it from me that irrespective of your present opinion of so-called antiseptics and mouth washes, a trial of Alkalol will convince you that the claims made for it, that it feeds the cells, tones up tissue, overcomes congestion, and is soothing and healing, are founded on fact. It's easy to try it because you can obtain a sample of Alkalol with literature giving the how and why of its action by writing to the Alkalol Company, Taunton, Mass."

Diamond Antiseptic Soap.

Practically any soap is a disinfectant as well as a detergent. For practical use, however, it is necessary to fortify the natural disinfectant properties of soap. The odor of phenol or cresol is objectionable to most persons, but mercuric iodide, the germicidal agent used in Diamond Antiseptic Soap, a Lilly product, is much more powerful in action than either phenol or cresol and in addition is non-injurious, in the strength required, and odorless.

Diamond Antiseptic Soap contains one per cent. of mercuric iodide and is eminently suited for use wherever a disinfectant or cleansing agent is desired, as in disinfecting the hands and surgical instruments.

Diamond Antiseptic Soap is said to be a neutral soap but to lather well in hard water. The unique diamond shaped cake fits the hand; it is thickest at the point of contact and therefore economical.

Being delicately scented Diamond Antiseptic Soap is excellent toilet soap and superior, especially if there are skin eruptions or infections.

For making antiseptic dressings, cleansing wounds, treating insect bites, for shampooing, disinfecting the hands and surgical instruments Diamond Antiseptic Soap, it is said, will prove a highly useful and satisfactory addition to the physician's emergency bag. Lilly's Diamond Antiseptic Soap is supplied through the drug trade.

\$300 IN PRIZES



What is the best title for this picture?

For the best title to the picture above The Medical Times will award prizes as follows:

First Prize	\$150.00
Second Prize	\$100.00
Third Prize	\$50.00

The contest will be governed by the following RULES

By "best" is understood that title which most cleverly describes the situation shown in the picture.

No title submitted shall consist of more than ten words.

The contest is open to physicians, medical students, interns, nurses, and advertising patrons.

The contest is now open. It will close October 1, 1921.

All titles should be addressed to The Contest Editor, of MEDICAL TIMES, 95 Nassau Street, New York, N. Y. Envelopes should contain nothing but the competing title and the name and address of the sender, plainly written, all on the same sheet. Readers and subscribers to MEDICAL TIMES are cautioned not to enclose checks or payment for old or new subscriptions, or changes of address, in correspondence

for Contest Editor, as letters for the Contest will not be opened until October first.

Titles will be judged by three members of the MEDICAL TIMES Staff and their decision will be final.

In the event of two or more persons submitting the titles which are considered the best, second best or third best each will receive the prize offered.

Titles may be original or may be a quotation from some well-known author. Contestants may send in more than one title.

The final award will be announced as early as possible after the close of the contest. Of this due notice will be given. Checks will be sent simultaneously with the announcements of the award.

The Medical Times Company
95 Nassau Street - - New York

Vitamines for the Sick.

Why prescribe vitamins? an inquirer said the other day. The vegetable kingdom affords us an abundant supply. Why cannot we direct our patients to eat vegetables, butter or milk containing these all-important essential principles? To completely reply to those inquiries would involve the writing of a lengthy thesis. A few words will suffice to make a practical statement of the situation.

The majority of our population live in towns and cities, in institutions, on shipboard, and some in remote regions away from civilization. The dietary of these people during a great part of the year consists largely of canned and dried vegetables, bread, artificial butter, sterilized milk, etc. All of these products have been subjected to heating or other processes that impair or destroy the vitamins they may have contained originally.

Even in regions where fresh vegetables and fruits are obtainable it would not be practical to feed sick people on them. As the editor of a well-known medical periodical recently said: "It is frequently undesirable to give the kind and quantity of food which would be necessary to yield a sufficient amount of a desired vitamin. One rarely prescribes a mess of spinach for a patient acutely ill or for a convalescent with impaired digestion, just because the vitamin that is present in spinach is desirable."

To meet the evident need, Parke, Davis & Co. have developed and perfected Metagen, a product containing the three known vitamins. These are fat-soluble A, water-soluble B, and water-soluble C. Apart from its unquestioned utility in the treatment of the so-called "deficiency" diseases, Metagen should prove of immense value in the treatment of poorly nourished infants and children, in all cases of subnutrition and reduced bodily tone, and in convalescence from febrile, infectious and wasting diseases, wherein failure to improve may not be due so much to a lack of a properly balanced diet as to failure of assimilation. Here the vitamins play an important part in stimulating anabolism in adults and healthy growth in children. As a supplement to a highly concentrated diet in tuberculosis, Metagen should be tried for its immediate effect on nutrition. The same might be said of anemia and chlorosis.

In view of the radical change that has come over the accepted methods of preparing and supplying the food of the nation, it seems that the discovery of the vitamins and the elaboration of Metagen, the most available preparation of vitamins for the use of the physician, are not only timely, but of the greatest importance in their bearing upon the health and well-being of the population.

University Medicos Visit Merrell Laboratories.

The Wm. S. Merrell Company entertained the graduating class of the Medical School of the University of Cincinnati at luncheon at the Gibson House recently. Mr. Chas. G. Merrell, the president of the company; Mr. Thurston Merrell, vice-president of the company; Lee Wiltsee, general sales manager, and Dr. Caswell A. Mayo, editor of the *Therapeutic Digest*, spoke briefly of the conditions surrounding medical education and of the future of medical education. Dr. J. V. Pilliod, president of the class, returned the thanks of the class for the hospitality shown by the Wm. S. Merrell Company and spoke with particular emphasis of the information gained by the members concerning pharmaceutical processes during the visit to the Merrell Laboratories which preceded the luncheon. During that visit the members had an opportunity to see the modest drug garden which has recently been inaugurated by the Wm. S. Merrell Company and many of them saw for the first time in a growing state such plants as *atropa belladonna*, *delphinium consolida*, *sanguinaria canadensis*, *digitalis purpurea*, *digitalis lanata*, *cimicifuga racemosa*, *acorus calamus*, *asarum canadensis*, *caulophyllum*, *thalictrifolius*, *celastrus*, *scandens*, *echinacea angustifolia*, *spigelia marilandica*, etc.

Pluto Water.

The fact that Pluto Water may be found in almost every hospital in the country is quite conclusive evidence that where an enema is most often needed and prescribed there Pluto Water is always at hand, and that is in the hospital.

Pluto Water is the product of French Lick Springs, of French Lick, Ind., where probably more worn-out business men go for a speedy renovation than to any other point in America. As one cannot go to French Lick whenever he needs a few days' rest and a cleaning out, why not do the next best thing—take a rest at home and use bottled Pluto Water? An occasional treatment of this kind would prolong the life of many a business and professional man for many years. The cost is next to nil; the returns *inestimable*.

The literature of Pluto Water contains much of interest to physicians, and of course the company will cheerfully send it to any physician upon request.

Physicians have found that Compound Urimene Powder

is valuable as a
"Clean-up" treatment
during or after any infection,
eliminating the toxins
from the system.

An excellent antiseptic and
saline eliminant, for use
in cases of

Intestinal Fermentation
Auto-intoxication
Cystitis

Albuminuria of Pregnancy
and
Rheumatic conditions.

COMPOUND URIMENE POWDER

contains

(in each dessert spoonful

URIMENE (Hexamethylene) . . 5 grs.
ACID SODIUM PHOSPHATE 30 grs.
LITHIUM CITRATE 5 grs.
SODIUM SULPHATE 8 grs.
SODIUM TARTRATE q.s.

THREE SIZES

Small, Medium and Large

Would you like a sample?

THE E. L. PATCH CO.

Stoneham 80,

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ANUSOL

(Trade-Mark)

Hemorrhoidal SUPPOSITORIES

"They break the 'Vicious Circle' in Hemorrhoids"

Hemorrhoid sufferers are always inclined to become careless and dilatory in their bowel movements, for fear of painful defecation.

And right there starts the "vicious circle": constipation, local irritation, aggravated Hemorrhoids, painful defecation, increased irregularity, and so forth.

Anusol Suppositories remove the dreaded strain and the reassured patient resumes his regular bowel function.

Then the excellent healing and tonic action of Anusol Suppositories can *set in* and do its utmost without *set-back*.

And the utmost of Anusol Suppositories accomplishment is the utmost in Hemorrhoidal therapy.

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SCHERING & GLATZ, Inc., 150 Maiden Lane, NEW YORK

Sherman's Polyvalent Vaccines in Respiratory Infections

A more adequate and rapid immunity is established with polyvalent vaccines than from an infection itself. SHERMAN'S POLYVALENT VACCINES WHEN GIVEN EARLY IN RESPIRATORY INFECTIONS, rapidly stimulate the metabolism and defense of the body with a resultant prompt recovery.

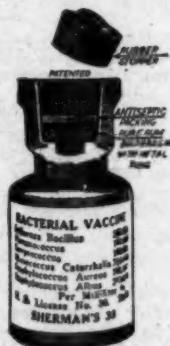
Administered in advanced cases of respiratory infections, they usually ameliorate or abbreviate the course of the disease. Even when used as the last desperate expedient they often reverse unfavorable prognoses. **SUCCESSFUL IMMUNOLOGISTS MAKE INOCULATIONS IN RESPIRATORY INFECTIONS AT THEIR FIRST CALL.**

Hay fever, colds, laryngitis, pharyngitis, coryza, adenitis, catarrh, asthma, bronchitis, pneumonia, whooping cough and influenza are diseases amenable to bacterial vaccines.

Sherman's polyvalent vaccines are dependable antigens.

**Bacteriological Laboratories of
G. H. SHERMAN, M. D.
DETROIT, U. S. A.**

"Largest Producer of Stock and Autogenous Vaccines"



SHERMAN'S
10 mil. Container

PULMOTONE

For 25 years a favorite with physicians



in coughs, bronchitis, pneumonia, phthisis, influenza and other respiratory diseases accompanied by severe cough and debility.

The formula tells why PULMOTONE is so dependable in checking the most persistent coughs and why it is so successful in warding off unfavorable sequelae. Immediately after the acute symptoms have subsided the administration of PULMOTONE will hasten recovery.

Practitioners see in the formula of PULMOTONE a judicious selection of efficient medicinal agents and indeed clinical results offer ample proof of its worth.

THE FORMULA:

1 fluidrachm represents:

Hydrocyanic Acid dilute 1 min., combined with Ichthyol, Creosote Carbonate, Extract of Malt and Aromatic Cordial.

IT IS PALATABLE

Let us send you sample and literature

R. J. STRASENBURGH COMPANY

Manufacturing Chemists
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ROCHESTER

NEW YORK

A-a-choo-o!! Hay Fever.

The story in pollination in flowers is a part of the story of sex in plants—a story that began with the first primitive green thing that grew, millions of years ago.

And while the story of pollens is exceedingly interesting and instructive, for the part they play in the growth of our crops and the very sustenance of human and animal life, yet there is a certain percentage of our population who wave the misfortune to suffer very serious effects from certain pollens, because they are sensitized to the proteins contained therein.

The season of plants and flowers is very beautiful to anticipate, for all except those who are thus sensitive to the pollen protein, and to such it formerly brought dread forebodings of the suffering and inconvenience they must endure during that season, if exposed to the pollens to which they are sensitive.

Since it has now been shown that so-called "Hay Fever" and "Rose Cold" may be prevented and relieved by treatment with pollen extracts, many persons are now able to continue with their regular duties, who formerly were incapacitated for work or had to travel to foreign parts during their period of attack.

Tests have also been devised for determining the specific pollen to which each individual patient is sensitive.

In order to obtain the best results in this line of treatment, it is, of course, important that the pollen extracts used be prepared with the utmost care, beginning with the gathering of the pollen in the field, and continuing through every step in the preparation to the final tests, in order to insure a reliable product.

According to a folder recently issued, the pollen extracts produced in the Mulford Laboratories contain only the acetone-insoluble portion of the pollen protein, with all the salts, gums, resins, etc., eliminated. Each lot of Mulford pollen extracts is standardized according to protein nitrogen content (an exclusive feature), and the strength expressed in definite terms of units.

They also offer a very convenient container for the cutaneous test, used in determining the specific cause of the symptoms.

Copies of this interesting folder may be obtained by writing to H. K. Mulford Company, Philadelphia, Pa., and mentioning this publication.

Treatment of Syphilis of the Nervous System.

Sicard reiterates the value of small repeated doses of neoarsphenamine and iodide, kept up every day or second day by

both the subcutaneous and the intravenous route. Five of his patients with typical general paresis have resumed their place in the family if not in business and the improvement has persisted for three years. Three times a year each is given a course of small repeated doses to a total of from 7 to 10 gm.—(*Médecine*, Paris, November, 1920.)

No "Normal" Urine

One is tempted to say that there is no such thing as "normal" urine. It is certainly wisdom in the beginner to adopt this axiom, and to act upon it in the routine examination and description of his patients.—(*Horder*.)

A New Principle Application to the Treatment of Gonorrhea.

F. S. Masons method consists of introduction within the cytoplasm of the gonococcus, of a soluble agent which when injected into the urethra will penetrate the cell wall and reach the nucleus of the gonococcus without irritating the urethral mucosa—a second reagent is injected which will penetrate the cell wall of the diplococcus and reach its cytoplasm and nucleus, producing within the cytoplasm of the gonococcus cell-wall, chemical molecular exchange with formation of an insoluble, ponderable and voluminous precipitate. Author claims that this treatment in many cases causes the gonococci to disappear from the urethra in from 24 to 48 hours. Gives technics.—*Amer. Jour. Surg.*, December, 1920.)

Take Safe Water for Picnic Lunches.

Motorists, hikers and campers take grave chances when they drink water from unknown sources, according to officials of the State Department of Health.

Wayside brooks and springs are often badly polluted and may be capable of causing typhoid fever or other serious intestinal disorders. Even farm wells should be looked on with suspicion, for convenience rather than safety usually governs the location of such wells which results in their being placed too close to privies, sink drains, and other sources of contamination.

Only springs in sandy soil remote from roads and human habitations, should be considered as safe for drinking purposes. The better course is to carry an adequate supply from a source known to be pure or to boil all drinking water.

DOCTOR BOND'S HOUSE, Yonkers-on-Hudson New York



For the scientific treatment of selected cases of NERVOUS and MENTAL DISEASES and Cases of Habit. Is free from institutional atmosphere of appearance, and has exceptionally beautiful grounds, views and surroundings. Modern hydrotherapeutic installation.

The limited number of eight received assures close individual attention.

Twenty-nine minutes from Grand Central Station, New York City. For illustrated booklet, address

Dr. G. F. M. Bond

960 North Broadway, Yonkers-on-Hudson, New York.

Telephone, 833 Yonkers.

FAIR OAKS SUMMIT, N. J.

For the care and treatment of nervous affections, neurasthenia, states of simple depression, exhaustion states and cases requiring rest, hygienic dietetic and occupational treatment. Insane and tubercular cases not accepted. Our occupational department is newly housed and equipped. Summit is located in the beautiful hill country of New Jersey, on the D. L. & W. RR., twenty miles from New York City. The institution is thoroughly equipped with baths and electrical outfit.

Dr. T. P. PROUT

SUMMIT, N. J.

Phone 143

"INTERPINES"

Beautiful, Quiet, Restful, Homelike

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Studies in Basal Metabolism.

From an experience extending over fourteen months and involving approximately 750 determinations on 350 persons, A. M. Snell; Frances Ford and L. G. Rowntree, Minneapolis, are convinced that determination of the basal metabolic rate yields results which vary only within narrow limits, which are reliable and consistent, and which are of practical value in following the clinical course of the case. In twenty-five determinations on nine control subjects, the greatest variation found in the rate of an individual case was 10.5 per cent., the average variation being approximately 5 per cent. In order to ascertain the extent to which exercise affects basal metabolism, the rate of several subjects was determined immediately subsequent to moderate exercise. The changes encountered emphasize the need of careful control in this connection. The increase in rate varied from plus 34 to plus 87. The effect was also determined on six subjects within two to four hours after the ingestion of a continental breakfast valued at approximately 200 calories and consisting of buttered toast, postum, cream and sugar. The increase in rate varied from 0 to plus 7. A rather constant rise occurs during menstruation or in the premenstrual period, the rise being followed by a post-menstrual fall. The possibility exists that ovulation may be responsible for this rise either directly or indirectly. In a group of thirteen cretins, the metabolic rate varied from -7 to -25. No constant or absolute parallelism between the clinical manifestation and the metabolic rate could be established, although, generally speaking, some agreement existed. In thirteen cases of hyperthyroidism, which were typical clinically, the basal metabolic rate ranged from plus 20 to plus 82, the rates being approximately proportionate to the clinical evidences of thyroid intoxication. In a series of eleven cases of thyrotoxic adenoma, the rate was lowered under treatment.

A group of seven pituitary cases has been studied, including two cases of Fröhlich's syndrome and five of primary diabetes insipidus. The basal metabolism rate was increased under sodium cyanide treatment. From the data presented it is evident that no profound or lasting effect on basal metabolism has resulted from the administration of desiccated powder of the anterior lobe by mouth, or from the subcutaneous use of the extract of the posterior lobe and pars intermedia. The addition of thyroxin to anterior lobe extract resulted in two cases of Fröhlich's disease in a marked increase in metabolic rate



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which was somewhat in excess of that induced by similar doses in normal persons. The fall of metabolic rate accompanying the period of fasting in the treatment of diabetes mellitus is striking. Several cases of leukemia and splenomegaly were found to exhibit a metabolism considerably above normal. The only instance encountered of a subnormal rate in leukemia was in a case in which splenectomy had been performed some years earlier. The effect of drugs on the rate was also studied. Moderate doses of potassium iodid were negative. The use of sodium cacodylate was disappointing. The authors believe that the rest rather than the cacodylate, was responsible for the results obtained. Concluding, it is stated that the basal metabolic rate is of the greatest significance in diseases of the endocrine system, particularly in diseases of the thyroid, revealing the extent of the increase in metabolism in exophthalmic goiter and in thyrotoxic adenoma, and of the decrease in metabolism in cretinism and myxedema and allied conditions. The basal metabolic rate furnishes an accurate index to the results of medical and surgical treatment of these conditions, and thereby becomes of value as a guide to treatment. The basal metabolic rate is of value in revealing the effect of drugs on metabolism.—(J. A. M. A.)

The Pathological Aspect of Prohibition



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Wet Grinding a Dangerous Occupation.

That grinding and polishing by the wet process, instead of being, as has been generally supposed, a dustless and innocuous process, is, under certain conditions, a dusty and exceedingly dangerous employment, seems to be demonstrated by a report prepared by Dr. W. Herbert Drury, of the U. S. Public Health Service, after an exhaustive investigation conducted in a large ax factory in a Connecticut town. Dr. Drury shows that the death rate (1900-1920) from tuberculosis among the workers in the grinding and polishing shops, who for six hours a day breathe an atmosphere of relatively high humidity heavily laden with acutely angular hard-siliceous dust, is 19 per thousand; and that of other workers in the same mills (but not in the grinding or polishing shops) is only 1.6. Furthermore, the rate in the general population (not including the mill workers) in the three villages from which the workers are drawn is 1.2 and in the whole State of Connecticut is 1.5 per thousand.

Grinding has long been recognized as gravely hazardous both in Europe and in the United States. All statistics, however, have heretofore been defective, no intensive study having been made anywhere.

The results of the present study are somewhat complicated by the fact that the grinders are without exception foreigners, mainly Poles, Slavs, and Lithuanians, while the polishers and the other employees of the mills are mainly Americans. The grinders have always been noted as hard drinkers, most of whom have regularly gone from the mills to saloons in their damp clothes to drink for several hours. The other workers have lived in characteristic American ways. These differences, however, though important, are not thought to account for the enormous differences, between 19.5 and 1.6 in the death rate per thousand. Moreover, alcoholism is a well-known consequence of work in a dusty atmosphere irritating to the mucous membranes rather than an independent cause.

Pulmonary infections other than tuberculosis show 4.3 deaths per thousand among polishers and grinders as against 1.7 per thousand among other mill workers.

It was not practicable to subdivide "polishers and grinders" into "polishers," "dry grinders," and "wet grinders," and to obtain separate figures for each. It is well known locally, however, that the death rate of the wet grinders is much higher than that of the others.

Counts show that there are an average of ten times as many

dust particles in wet as in dry grinding shops; and the reports recommend the substitution of a dry grinding process properly protected by the installation of exhausts for the present wet process.

Cardiac Standstill With Syncope Following Pressure on Right Vagus Nerve.

Wyndham B. Blanton and H. Wallace Blanton, Richmond, Va., cite the case of a man, aged 54, whose vision suddenly became blurred, and he fell to the floor unconscious when his wife attempted to button his collar. In about three minutes, he regained consciousness, and feeling no ill effects went as usual to his work. He apparently was normal in every respect. To elicit Czermak's sign, pressure was made with the finger on the right side of the neck anterior to the sternocleidomastoid muscle and just below the angle of the jaw. At the same time the heart was auscultated. With moderate pressure, slowing of the heart rate was immediate and pronounced. Firmer pressure was then exerted, and the heart came to a standstill, the patient turned pale, became suddenly limp, and exclaimed, "I am going to faint." At this point the pressure was released and the patient came round, declaring that he had felt precisely the same sensations when he fainted while his wife was fastening his collar. Pressure on the left side of the neck failed to produce these effects. On several occasions this experiment was repeated, and it was found that stoppage of the heart could be produced at will by this method. The patient has never experienced any ill effects following cessation of the heart beat as thus produced.—(J. A. M. A.)

Diagnosis of Chronic Valvular Disease.

Paul D. White, Boston, summarizes the symptoms and signs of disease of each of the four heart valves: mitral, tricuspid, aortic and pulmonary; taking up first the pathognomonic signs, if there are any, and then those that indicate, but do not prove, the presence of a definite valvular lesion. White believes that pathognomonic of an individual valve lesion. It is only when heart failure begins or when a cardiac infection is in progress that special symptoms begin to develop.—(J. A. M. A.)

The U. S. Public Health Service estimates that at least 500 and possibly 1,000 lepers are at large in the United States, and that the number is increasing. The government did not start work on its Federal Home for Lepers a minute too soon.

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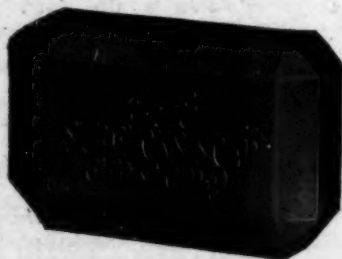
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The Importance of Recognizing and Treating Neurosyphilis in the Early Period of the Infection.

John A. Fordyce emphasizes need for spinal fluid examination in earliest stage of the disease.

It is probable that foci are established in the various organs during the early florid stage of the disease. These may slowly cause tissue changes or the organs may harbor the treponema without reactions for an indefinite time. There are arguments in favor of a strain of treponema with neurotropic affinities or rapid invasive power. In the majority of cases syphilis of the nervous system is not cured by the use of specific remedies employed in the usual way. Intraspinal therapy is recommended when used with the proper technic and where indications are present for it. Points out dangers of intraspinal treatment—recommends complete rest for 24 or 48 hours. Gives symptoms which should act as danger signals. The injection should never be given oftener than every two weeks for the first three or four, then at longer intervals, after six or eight treatments a rest period of two or three months. The Swift-Ellis serum introduced by gravity is the method recommended.—(*Amer. Jour. Med. Sci.*, March, 1921.)

Neurosyphilis.

O. Hanssen relates that on admittance to the hospital 13.5 per cent. of 105 patients with neurosyphilis had a negative Wassermann reaction in the blood but positive in the cerebrospinal fluid. (This was exclusive of the cases with paralysis. Of the 19 cases of tabes, the reaction was negative in 4 in both blood and spinal fluid, but in the others it was positive in the spinal fluid. Leaving general paralysis out of consideration, the effects of specific treatment on tabes, hemiplegia, spastic, spinal paralysis and other syphilitic nerve and brain diseases were satisfactory in that paralysis decreased, fits and bladder condition improved, etc.—(*Acta Medica Scandinavica*, Stockholm, January 14, 1921.)

Silver Salvarsan in the Treatment of Syphilis.

Major C. M. Walson, U. S. Army, reviews literature and gives a valuable list of references (all German), on silver salvarsan. Silver salvarsan has been used at Base Hospital and Convalescent Hospital A. F. in G., Coblenz, Germany.

Author summarizes:

Silver salvarsan is the strongest spirocheticide as well as being the least toxic of all arsenobenzol preparations.

Technic of administration requires strict asepsis; freshly distilled sterilized water in the proportion of 10 c.c. to each 0.1 gm. of silver salvarsan; powder must be completely dissolved before administration; precaution to prevent extravasation of the silver salvarsan solution surrounding tissue; and slow administration.

Mercury should be given with silver salvarsan.

The results obtained in primary syphilis on the Wassermann reaction are as good, if not better, than any other arsenobenzol preparation. The Wassermann reaction reversed to negative as rapidly in secondary syphilis with the silver salvarsan and mercury, as in many other arsenobenzol preparation with mercury.

If silver salvarsan is used alone probably the best treatment (based on results reported in recent literature), is as follows: Begin treatment with 0.1 gm. silver salvarsan, increase to 0.2 gm. for women, 0.25 for men, as maximum dose, with interval of four days between doses, and never give more than 2 gm. in any one month.

Effect on clinical results good, alarming effects never seen in any cases in the two army hospitals mentioned. Constant vigilance is essential. Particular attention should be given to patient's weight, a beginning erythema, functional kidney and liver tests.—(*Amer. Jour. Med. Sci.*, March, 1921.)

Syphilitic Psychoses.

Dubois reports 2 cases of maniacal psychoses, in one of the symptoms suggested general paresis and in the other manic-depressive delirium. The improvement and recovery under arsphenamin coincided with the improvement of the findings in the blood confirming syphilitic nature of the mental disease.—(*Arch. M d. Belges*, Li ge, October, 1920.)

Gonorrhea in the Female.

Wobus discusses difficulties of diagnosis. In recommending treatment author gives specific treatment for vaginitis, urethritis, endocervicitis, salpingitis and involvement of Bartholin's glands.—(*Jour. Mo. State Med. Assn.*, March, 1921.)

Taking the Doughnut Out of the Index Expurgatorius

There are very few people who wouldn't relish a couple of nice, brown, crisp doughnuts—if only they could digest them. But under all ordinary conditions these delicacies are taboo.

This is because doughnuts cooked in animal fats have absorbed a considerable quantity of this fat, and are therefore heavy and soggy.

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Czecho-Slovakia to Report Cases of Venereal Disease

Section of social pathology in the Ministry of Public Health and Physical Education prepared experimental reporting for the month of February. This measure is in connection with the new bill on venereal diseases by which free treatment will be offered to all venereal patients.—(*Social Hygiene Bulletin*, April, 1921.)

The Effects of Syphilis on the Families of Syphilitics Seen in the Late Stages.

H. C. Solomon and M. H. Solomon examined the families of 555 late syphilitic patients who came to the Psychopathic Hospital, Boston, having a positive Wassermann reaction. Authors summarize findings:

At least one-fifth of the families of syphilitics have one or more syphilitic members in addition to original patient.

Between one-third and one-fourth have never given birth to a living child.

More than one-third have accidents to pregnancies.

The birth rate is 2.05 per family as against 3.8 per family of a large group of New England families taken at random.

Only one-third show no defect as to children or Wassermann reaction in spouse.

One-fifth of the pregnancies are abortions, miscarriages, or still-births, compared with less than one-tenth of the pregnancies in non-syphilitic families.—(*Social Hygiene*, October, 1920.)

Marriage of Syphilitic Women.

The commission recently appointed by the Société Française de Dermatologie et Syphiligraphie in reporting on the subject of marriage and syphilis, made a series of recommendations to suit varying conditions of infection, but generally speaking they amount to a rule that 2 years elapse between the disappearance of all symptoms and marriage. Dr. Lacapère pointed out at the special session, when this report was considered, that a distinction had not been made between the two sexes. He considered that the general rule was too severe in the case of men, and not severe enough in the case of women. . . . Writer cites other authorities in support of this view. J. E. R. McDonagh says: "If a woman has syphilis . . . however drastic the treatment has been, there is always the risk that her children will be syphilitic." Concludes with the following: "It has been shown, however, that syphilitic mothers may bear perfectly healthy children if they are properly treated with anti-syphilitic remedies during the months of pregnancy, and the wisest advice a physician can give to such a woman who is bent on matrimony is that during her first and every subsequent pregnancy she must attend a venereal clinic for regular treatment and advice."—(Editorial, *Lancet*, London, February 26, 1921.)

The Incidence of Congenital Syphilis Among the Newly Born.

Ross and Wright carried out investigations to determine the incidence of congenital syphilis among the newly born in a mining town and an industrial town in one of the Midland counties. The cases were unselected and in no case had either parent been treated for recognized syphilis. Midwives collected specimens. "The blood was taken from the placental end of the umbilical cord immediately after it was severed from the infant."

Result of investigation of 300 cases in mining area: in 284 cases or 94.6 per cent. the results of both workers were identical, 10 cases or 3.5 per cent. being definitely positive.

Only 40 specimens sent in from industrial towns in the midlands. One case found positive by both observers, a percentage of 2.5.—(*Lancet*, London, February 12, 1921.)

The Offspring of Persons with Inherited Syphilis.

Sidler-Huguenin has been examining the children of 250 persons whom he knew were subject to inherited syphilis. This included 50 families and 28 per cent. of them were childless. He mentions further that among the 250 persons with inherited syphilis only 9 lived to be 60 years old. . . . He could not find any characteristic symptoms of inherited syphilis in the 65 children of the second generation except in one case and this was not certain. The normal roentgen-ray findings and the negative Wassermann tests testify against syphilis even in this case. Persons with inherited syphilis can thus be reassured that their children will not feel the effects of it, although there is more probability of childlessness than under normal conditions.—(*Schweiz. med. Woch.*, Basel, January 20, 1921.)

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Obviously, to obtain full benefits from Dioxogen in these acute throat infections, it must be properly used and brought in thorough contact with every part of the affected area. Gargling alone will not suffice, and to reach the entire surface of the throat, systematic swabbing and spraying are always necessary.

Following is the technic employed by a New York physician who obtains conspicuously successful results in the treatment of these grave throat infections:—

At the earliest possible moment after the throat condition comes under observation, the pharyngeal mucous membrane is thoroughly swabbed with cotton pledgets saturated with Dioxogen, diluted one part to three of warm water, the utmost care being taken to reach every part of the throat, especially back of the fauces. This swabbing is done twice a day by the medical attendant. In addition, the patient is instructed to spray the throat every hour with Dioxogen, diluted one part to six parts of warm normal salt solution.

Fortunately, the non-toxic and non-irritating character of Dioxogen make it possible to use it as freely and extensively as the severity of the throat infection may require. Used in conjunction with appropriate systemic and supportive treatment, implicit confidence can be placed in the capacity of Dioxogen, not only to control these serious throat infections without delay, but to prevent the development of complications and sequelae.

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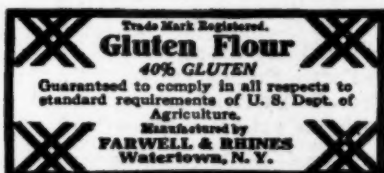
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Feeble-mindedness in Hereditary Neurosyphilis.

O. J. Raeder investigates cases of thirty children from 2 to 16 years of age, of syphilitic parentage, in an attempt to determine the incidence of central nervous system invasion among children of this class. Blood and spinal fluid examinations have been made on 22 children. Psychologic tests have been employed to study the effect of the syphilotoxin on the brain. It has been found that various degrees of syphilitic infection are present in a definite order in a family of several children, the oldest, born soonest after the parental infection, showing the greatest injury and the succeeding children showing, in order, milder degrees. The youngest children of a family, though sero-negative, have been found to be feeble-minded to a slight degree.

Author concludes, mental deficiency in congenitally syphilitic children whose parents are not feeble-minded, is in the majority of cases due to syphilis.—(*Amer. Jour. Dis. Child.*, March, 1921.)

Nutritional Work in Public Schools.

Katharine B. Rich, Chicago, is convinced that it is entirely possible to carry on nutritional work in the public schools without rest periods or free milk, and obtain appreciable gains in weight and height. It is also possible to place the responsibility for their gains on the children, to their great advantage and with a saving of the nutritional worker's time. It can be done without seriously interfering with studies or classes, and both mental and physical gains more than compensate for the small amount of time lost. One efficient nutritional worker can, at a minimum, teach and care for, and do clerical work necessary for 400 children each week. (This is allowing for less than thirty children to a class, and a well-trained worker can easily handle thirty-five.) It is not an expensive per capita proposition handled along the lines of instruction as outlined. The percentage of gains can be greatly increased over what we have obtained if all-time workers are employed, and if the work has the unqualified backing and support of the school authorities, thus dignifying it as being part of the regular school program.—(*J. A. M. A.*)

Intravenous Administration to Mice, Rats and Guinea Pigs.

Roth gives detailed account of the procedure of intravenous administration as carried out by the Hygienic Laboratory of the United States Public Health Service, either when employing the official method for biologically standardizing arsphenamine or in investigations bearing upon modifications in the official method. The procedure is given in response to numerous requests.—(*George B. Roth, Public Health Reports*, April 1, 1921.)

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The Spinal Fluid in Syphilis in All Stages.

Since the installation of the syphilis clinic at the University of Michigan in 1913, a study has been made of the spinal fluid in all cases of syphilis.

Udo J. Wile and C. H. Marshall made a study of 1,869 cases, selected particularly with reference to correct diagnosis. The number was limited to those accurately observed over a definite period of time. These conclusions were reached:

1. The nervous system, if uninvolved as shown by the accepted criteria during the first months of the infection, is seldom invaded later. A negative preliminary puncture followed by positive findings at a later date occurred in only three of several thousand cases punctured.
2. Of the several criteria indicating involvement, the increase of organic solids is found to be slightly higher than either the cell count or the Wassermann reaction, the relative value being indicated in the order just mentioned.
3. A considerable degree of cerebrospinal involvement may be present in the latent period of syphilis without manifesting any signs or symptoms.
4. Such asymptomatic cases may become symptomatic later, and a study of the colloidal gold curve in these cases is of some value in estimating the ultimate prognosis of the case.
5. Comparing the large number of cases of primary and secondary syphilis in which positive findings are found, with the relatively small percentage of late neurosyphilis as compared to total syphilitic incidence, we must conclude that a large number of early cases are in the nature of a meningeal roseola, which is transitory in its clinical aspects.
6. The interpretation of the lumbar puncture findings, particularly early in the incidence of the disease, constitutes a valuable guide in estimating the ultimate prognosis of the disease with regard to the integrity of the nervous system.—(*Arch. Derm. & Syph.*, No. 3, 1921.)

A Group Study of Three Hundred Cases of Arthritis.

M. C. Harding found that of 300 arthritis patients, 0 per cent. had gonorrhea, and 4 per cent. gave a positive Wassermann.—(*Cal. State Jour. Med.*, January, 1921.)